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Good Seatizenship: Evaluating the effect of the Sea and Earth Advocates Camp on Self-Reported Knowledge, Attitudes, and Behaviours

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"You don't change the world by hiding in the woods, wearing a hair shirt, or buying indulgences in the form of save the earth bumper stickers. You do it by articulating a vision for the future and pursuing it with all the ingenuity humanity can muster."

Alex Nikolai Steffen, 2006

DECLARATION OF OWN WORK

I declare that this thesis:

"Good Seatizenship: Evaluating the effect of the Sea and Earth Advocates Camp on Self-Reported Knowledge, Attitudes, and Behaviours"

is entirely my own work and that where material could be construed as the work of others, it is fully cited and referenced, and/or with appropriate acknowledgement given.

Signed……

Student: Anna R. Oposa

Supervisor: Dr. Andrew T. Knight

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ACRONYMS AND ABBREVIATIONS

CI – Conservation International

CAS – Civic Attitudes and Skills

DepEd – Department of Education

DENR-BMB – Department of Environment and Natural Resources-Biodiversity Management Bureau

DENR-EMB – Department of Environment and Natural Resources-Environment Management Bureau

ECOFISH – Ecosystems for Improved Sustainable Fisheries

EE – Environmental Education

EO – Entrepreneurial Orientation

FGD – Focus Group Discussion

NEEAP - National Environmental Education Action Plan

NGO – Non-Governmental Organization

SEA – Sea and Earth Advocates

SPS – Save Philippine Seas

PBC –Perceived Behavioural Control

TPB – Theory of Planned Behaviour

US – United States

USAID – United States Agency for International Aid

ABSTRACT

Evidence of success is crucial to support the use of educational programmes as an approach to address environmental issues. This study evaluates the effect of the Sea and Earth Advocates (SEA) Camp, an environmental education programme in the Philippines designed to increase the participants' environmental knowledge, attitudes, and behaviours. Activities included panel discussions with conservation professionals; workshops on project management and advocacy communications; snorkeling in marine protected areas; and proposing environmental projects that could be funded for implementation. Qualitative and quantitative data were collected through pre-, post-, delayed post-tests, reflection sheets, and focus group discussions. Summative and formative evaluations showed significant gains in knowledge, environmental and civic attitudes, and commitment to pro-environmental behaviour. Results suggest that outdoor education, framing conservation as an interdisciplinary field, and emphasis on individual responsibility could improve attitudes toward pro-environmental behaviour. Lessons from the evaluation and considerations for future SEA Camps are presented.

WORD COUNT: 15, 315

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1. INTRODUCTION

1.1. Overview

The Philippines, located in Southeast Asia, is an archipelagic country with 7,107 islands. Environmental Non-Governmental Organization (NGO) Conservation International (CI) has named it one of the 17 megadiverse countries of the world because of its high biodiversity and endemism (DENR-BMB, 2014). Globally, the Philippines ranks fifth in plant diversity and fourth in bird endemism (CBD, 2015). While the extent of its marine biodiversity is unknown, available information has prompted scientists from the California Academy of Sciences to describe it as the "centre of the centre" of marine biodiversity (DENR-BMB, 2014; CAS, 2015).

The Philippines' high poverty incidence, increasing population, pursuit for economic growth, and impacts of climate change have put unprecedented pressure on its natural resources (DENR-BMB, 2014). One of the strategies being employed to curb biodiversity loss by both public and private sectors is environmental education (EE) (DENR-EMB, 2015). The Philippines' National Environmental Education Action Plan for Sustainable Development defines EE as:

> "the process by which people develop awareness, knowledge and concern of the environment and its diverse values and processes, and learn to use this understanding to preserve, conserve and utilise the environment in a sustainable manner for the benefit of present and future generations. EE involves the acquisition of skills, motivations and commitments to work individually and collectively toward the solution of current environmental problems and prevention of new ones" (DENR-EMB, 2002, p. 9).

As a discipline, EE has been described as "soft" and has sometimes received less resources than other areas of conservation (Hudson, 2001). However, several studies have shown that effective EE programmes can develop knowledgeable and proactive citizens, and create behaviour and institutional change (Hudson, 2001; Zint et al, 2002; Potter, 2002; Jacobson, McDuff & Monroe, 2006; Johnson et al, 2013). EE programmes targeting youth are especially crucial because they are the future generation's leaders, voters, and consumers (Lyons & Breakwell, 1994; Wray-Lake, Flanagan, & Osgood, 2010). Moreover, many young people have been at the forefront of environmental movements all over the world, demonstrating capacity of youth to be agents of change (UN, in press). The Philippines' Environmental Awareness and Education Act of 2008 specifically stated that the law was formed "in recognition of the vital role of the youth in nation building" (Philippine Senate).

The Philippines has one of the youngest populations in Southeast Asia. Youth, defined as 15-30 years old in the Philippines, comprises 28% of the country's population (NYC, 2013). In 2010, a nationwide survey conducted among 5,850 Filipino youth revealed that two-thirds of the respondents had never been members of any youth group, but a third have joined projects on environmental conservation (NYC, 2013). This could mean interest and/or available opportunities for youth to engage in conservation.

1.2. The Sea and Earth Advocates Camp

Founded on these beliefs, a local NGO called Save Philippine Seas (SPS) implemented the Sea and Earth Advocates (SEA) Camp, an EE programme designed to build the capacity of Filipino youth to be leaders in marine conservation. The project was a recipient of a State Department grant from the United States (U.S.) Embassy based in Manila, the Philippines' capital. The SEA Camp's aims were to (i) increase participants' environmental knowledge, attitudes, and behaviours; (ii) build their capacity to initiate and lead environmental projects; and (iii) establish a network of Filipino youth engaged in environmental initiatives. The author of this thesis is the co-founder of SPS and founder and Project Director of the SEA Camp.

From April-June 2015, four SEA Camps were implemented in four different Marine Key Biodiversity Areas in the Philippines (CI, 2014). The first three were regional camps, set in the three regional island groups of the Philippines: Luzon, Visayas, and Mindanao. Each regional camp had up to 30 participants, bringing the total number of SEA Camp participants to 88. The camps had similar curricula, which included panel discussions with conservation practitioners, workshops on project management and advocacy communications, field trips to marine protected areas, and interaction with local community organisations. See Appendix I for Luzon SEA Camp schedule.

At the end of each regional camp, all participants were required to propose an environmental project to a panel of mentors. The panel selected up to 10 projects per camp that received grants of PhP10,000 (£139.22[1]) for implementation. All 30 participants who received grants—10 from each regional camp—gathered in the fourth and final SEA Camp in June 2015, where they presented their progress reports and had the opportunity to receive an additional PhP10,000 to support their projects.

[1] As of 30 August 2015, £1 is equivalent to PhP71.32 (XE, 2015).

1.3. Statement of the Problem

Despite the many EE programmes that exist, there is a lack of literature on how EE programmes are evaluated, how they affect behaviour over time, and what activities and factors affect human behaviour the most (Jacobson, 1987; Norris & Jacobson, 1998; Fien, Scott, & Tilbury, 2001; Carleton-Hug & Hug, 2010). Possible reasons for this are fear of negative input and exposure, fear of change, and/or lack of financial and/or human resources to carry out evaluations (Ferraro & Pattanayak, 2006; Margoluis et al, 2009; Carleton-Hug & Hug 2010; Kleiman et al, 2011).

Evaluating EE programmes has a number of benefits to various stakeholders involved. If educators and conservation professionals can gauge effectiveness of EE programmes, they can determine which aspects of the programme to continue, improve, or cease, allowing for scarce resources to be efficiently allocated (Jacobson, 1987; Ferraro & Pattanayak, 2006). When EE programmes are effective, participants can maximise their engagement, which could lead to positive environmental attitudes and pro-environmental behaviour (e.g., Zint et al, 2002; Kruse & Card, 2004; Johnson et al, 2013).

1.4. Aims and Objectives

This study aims to evaluate the short-term effect of the SEA Camp in meeting its objectives by measuring the participants' self-reported environmental knowledge, attitudes, entrepreneurial orientation, and pro-environmental behaviour before and after the SEA Camp.

The research has the following objectives:

(i) to determine the relationship between knowledge and pro-environmental behaviour;

(ii) to determine the relationship between specific pro-environmental behaviours and attitudes towards these behaviours, subjective norm, perceived behavioural control, entrepreneurial orientation, and civic attitudes and skills;

(iii) to identify the pro-environmental behaviours that positively increased after the SEA Camp, and factors that explain or drive this increase as a measure of the effectiveness of the programme; and

(iv) to make recommendations to improve future SEA Camps.

1.5. Hypotheses

This study tested the following hypotheses:

(i) increased knowledge results in increased pro-environmental behaviour;

(ii) attitudes towards pro-environmental behaviour have the greatest positive influence on participants' behaviour compared to subjective norm, perceived behavioural control, entrepreneurial orientation, and civic attitudes and skills; and

(iii) pro-environmental behaviour significantly increased in the majority of participants six to eight weeks after the SEA Camp .

1.6. Significance of Study

There is a growing body of research on environmental attitudes, concerns, and behaviours of adolescents, especially in North America (e.g., Shepard & Speelman, 1986; Blumstein & Saylan, 2007; Wray-Lake, Flanagan, & Osgood, 2010). Studies on EE in the Philippines and its effect on knowledge, attitudes, and behaviours of Filipinos have been limited (but see Su, 2008; Galang, 2010; Reyes, 2014). This study will provide benchmark information that may be useful to decision-makers, academics, and advocates when developing programmes and campaigns that impact or engage youth. In the interest of building the participants' capacity to initiate and lead environmental projects, this study also examined participants' entrepreneurial orientation, which has been used in pharmaceutical education (Hermansen-Kobulnicky & Moss, 2004), corporations (Lumpkin & Dess, 1996), and surveying rural landowners (Knight, 2007).

The SEA Camp participants have been identified as potential future leaders of society. Empowering them and gaining a deeper insight into their knowledge, attitudes, and behaviours could have positive direct and indirect impacts on future decisions regarding the conservation of the Philippines' natural resources. Lastly, results of this study will make a direct impact on how future SEA Camps are designed and implemented if funding is secured to repeat the project.

2. BACKGROUND

2.1. About the Philippines

The Philippines is a democratic republic with a presidential form of government (Philippine Government, 2015). Its total land area is 298,170 km^2 (CIA, 2015). It has three major island groups: Luzon, Visayas, and Mindanao. It has the third largest Catholic population in the world after Brazil and Mexico, where over 80 million people (82.9% of the population) are Catholic (CIA, 2015). The second most widely practiced religion in the Philippines is Islam (5% of the population) (CIA, 2015). The highest concentration of Muslims is in Mindanao, southern Philippines (Clapano, 2009).

The Philippines has been described as a "biodiversity superstar" because of its high number of species and species endemism (DENR-BMB, 2014). According to the Philippines' country report to the Convention on Biological Diversity, about 25 genera of plants and 49% of terrestrial wildlife are endemic (DENR-BMB, 2014). It holds the third largest (22,500km^2) and one of the most biodiverse reef areas in the world (DENR-BMB, 2014). At over 36,000 km, the Philippines also has one of the world's longest coastlines. More than 60% of Filipinos live in coastal areas (DENR-BMB, 2014).

The World Bank describes the Philippines as "one of the most dynamic emerging markets in the East Asia region" because of its rapid economic growth in recent years (World Bank, 2015). The pursuit of economic growth has resulted in more intensive and extensive agricultural practices, export-oriented policies, and extractive industries such as mining and logging, which have had negative impacts on the environment (CBD, 2015). Overfishing and continuous use of illegal fishing methods have drastically reduced overall reef health, with <1% of the country's reefs in excellent condition (DENR-BMB, 2014).

In 2014, the Philippine Statistics Authority reported that 25.8% of the population lived below the poverty line, a 1.2% increase from the 2013 report (PSA, 2015). The extent of poverty in the Philippines, coupled with its high average annual population growth rate of 1.7%, has placed intense pressure on its natural resources (DENR-BMB, 2014; World Bank, 2014). As of August 2015, the country's population has reached more than 100 million, making it one of the most populous countries in the world (CBD, 2015; CIA, 2015).

The government has identified five major direct drivers of biodiversity loss: habitat loss and degradation; overexploitation and unsustainable use; invasive alien species; pollution; and climate

change (DENR-BMB, 2014). In the 2015 Global Climate Risk Index, the Philippines had the top spot as the nation suffering most from extreme weather events and sea level rise (Kreft et al, 2015). In 2013, the strongest recorded Category 5 typhoon named Haiyan caused PhP89.59 billion (£1.26 billion) worth of damage and over 6,300 recorded deaths (Lacuata, 2014; DENR-BMB, 2014).

2.2. Environmental Knowledge, Attitudes, and Behaviours

One of the goals of EE is to develop individuals who engage in pro-environmental behaviour (see UN Tbilisi Declaration, 1977; Hines, Hungerford & Tomera, 1986/87; Monroe, Andrews, & Biedenweg, 2008). Pro-environmental behaviour is defined as "behavior that consciously seeks to minimise the negative impact of one's actions on the natural and built world" (Kollmus & Agyeman, 2010, p. 240). Pro-environmental behaviour can be categorised into five types: environmental activism (e.g., active participation or leadership roles in environmental organisations and demonstrations); non-activist political behaviours (e.g., joining environmental organisations, signing a petition); consumer behaviours (e.g., purchasing environment-friendly products, reducing plastic consumption); ecosystem behaviours (e.g., mangrove planting); and behaviours specific to an individual's expertise or workplace (e.g., establishing a "drinking straws upon request" policy at a restaurant) (Winther, Volk, & Hungerford, 1994; Stern, 2000; Monroe, 2003).

Hines, Hungerford and Tomera (1986/7) conducted a meta-analysis of research on pro-environmental behaviour and found that pro-environmental behaviour was associated with knowledge of issues, knowledge of action strategies, locus of control, attitudes, verbal commitment, and an individual's sense of responsibility. They presented a Model of Responsible Environmental Behaviour using these factors.

Twenty years later, Bamberg and Möser (2007) replicated and extended the study, and found that pro-environmental behaviour was a combination of "self-interest and concern for other people, the next generation, species, ecosystems" (p. 15). Their study showed that the most common theoretical frameworks used to study pro-environmental behaviour were the Norm-Activation Model, wherein moral or personal norms are direct determinants of pro-social behaviour; and the Theory of Planned Behaviour, where subjective norm, perceived behavioural control, and attitudes form behavioural intention, which leads to performance of the particular behaviour. From the Model of Responsible Environmental Behaviour, Bamberg and Möser (2007) created a Meta-analytic Structural Equation Model to confirm that personal moral norm and problem awareness were predictors of environmental behaviour, and that pro-environmental behaviour intention mediated the impact of

other psycho-social variables.

It is of great interest to study environmental knowledge, attitudes, and behaviours of young people. People in this life phase are more open to socialisation influences, and values, worldviews, knowledge, and attitudes gained during this period may be carried into adulthood (Wray-Lake, Flanagan & Osgood, 2010), where individuals may exercise greater societal influence. Wray-Lake, Flanagan, and Osgood (2010) examined trends of environmental attitudes and concerns of adolescents in the U.S. They gathered data from almost 100,000 high school seniors in the U.S. from 1976 to 2005. Their research revealed that environmental concerns increased during the early 1990s and declined across the remaining decades. Findings showed that youth tended to assign responsibility for environmental protection to the government and consumers, rather than personal responsibility. Potential reasons for fluctuations of environmental concern could be high-profile events linked to the environment, such as oil spills, the 20th anniversary of Earth Day, environmental policies of incumbent presidential administrations, and predominant values and worldviews at a given time (Wray-Lake, Flanagan, & Osgood, 2010).

In a similar study surveying young people in selected countries in Asia-Pacific, data showed that the youth's environmental beliefs were influenced by a long tradition of caring for the environment, religion, media treatment, and effects of colonial rule (Fien, 2002). Across approximately 60 focus groups, the general sentiment of the youth was that they had the desire to do more for environmental protection, but felt they did not have knowledge, experience, and confidence to do so. They believed that their environmental actions were limited to domestic activities such as recycling. The youth felt that social change largely depended on governments and businesses. Only a few people saw themselves trying to influence public opinion or government actions (Fien, 2002).

2.3. Understanding Human Behaviour

The Theory of Planned Behaviour (TPB) is one of the most widely used socio-psychological theories used to study human behaviour. It was derived from the Theory of Reasoned Action, which states that behaviour is determined by intention to perform the behaviour (Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010). Intention is a function of an individual's attitude toward the behaviour (i.e., positive or negative evaluation of the behaviour) and his/her subjective norm (i.e., perceived social pressure to perform the behaviour) (Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010). It was later revised to the TPB with the inclusion of perceived behavioural control (PBC), i.e., "perceived control over performance of a behaviour" (Ajzen, 1991; Ajzen, 2002, p. 668). PBC depends on

beliefs about the presence or absence of factors that may enable or hinder performance of a particular behaviour (Ajzen, 2002). According to the TPB, people are more likely to perform a specific behaviour if they evaluate it positively, feel social pressure to perform it, and have sufficient degree of control over it (Ajzen, 1985; Ajzen, 1991). Figure 2.1. illustrates the TPB.

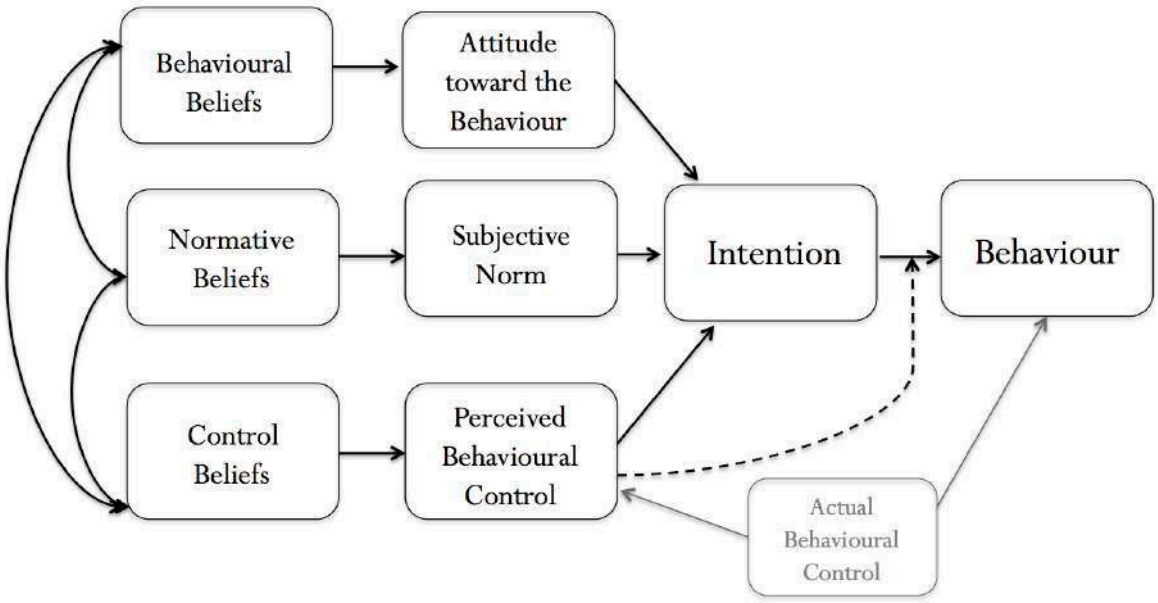

Figure 2.1. Theory of Planned Behaviour (Ajzen, 2006)

The degree of influence that each determinant has on intention depends on the behaviour being examined (Ajzen, 2005). The TPB has been used in various studies on environmental behaviour, such as hunting (Hrubes, Ajzen, & Daigle, 2001); recycling (Tonglet, Phillips, & Read, 2004); saving water (Kilic & Dervisoglu, 2013); predicting environmental behaviour (Chao, 2012); and determinants of environmental behaviour among youth (Niaura, 2013). Insights on the cognitive and affective processes behind a particular behaviour could be used to improve marketing strategies, systems, or facilities needed to encourage that behaviour (Monroe, 2003; Tonglet, Phillips & Read, 2004; Jacobson, McDuff, & Monroe, 2006).

2.4. Environmental Education

Perhaps the most basic definition of EE is to "[learn] about the environment" (Monroe, Andrews, & Biedenweg, 2008, p. 1). Activities, projects, and programmes under EE give people opportunities to explore and appreciate nature, and/or gain information, change attitudes, and skills to conserve, protect, or restore the environment (DENR-EMB, 2003; Monroe, Andrews, & Biedenweg, 2008). Contemporary EE can be categorised in three settings: formal education, carried out in schools and by governments; non-formal education, implemented by organisations such as youth groups, NGOs,

and zoos; and informal education, provided by media and other channels of communications to reach audiences outside organised groups (Fien, Scott & Tilbury, 2001).

Outdoor education is a popular approach of EE (e.g., Shepard & Speelman, 1986; Dresner & Gill, 1994; Zint et al, 2002; Kruse & Card, 2004). Taking people out into nature has shown to increase positive attitudes towards wildlife (e.g., Dettmann-Easler & Pease, 1999), build self-esteem, and "[develop] a sense of stewardship" for a place (Dresner & Gill, 1994, p. 36). Outdoor education can also aid in retention of positive attitudes towards wildlife (Dettmann-Easler & Pease, 1999).

Though EE has shown success in increasing environmental knowledge and promoting pro-environmental behaviour, it must be examined critically and not viewed as the panacea to environmental degradation. Blumstein and Saylan (2007) pointed out that there appeared to be a gap between what students learned in the classroom and did outside of it. They argued that students are taught ecological processes, but not necessarily the importance of how changing consumption patterns makes direct impacts on the environmental. For example, students in the U.S. learn EE from kindergarten through 12th grade, but the U.S. is still one of the largest consumers of fossil fuel per capita, making them a major contributor to climate change (Blumstein & Saylan, 2007). This suggests that individual responsibility and environmental stewardship have not been "widely received and/or understood" in the U.S. (Potter, 2002, p. 25).

Blumstein and Saylan (2007) emphasised that EE needed to create personal empowerment and measureable positive impacts. To make EE more effective, they proposed the following: design programmes that can be properly evaluated; teach the value of changing consumption patterns; teach a worldview to help students realise impacts of consumption beyond themselves; teach how governments work and how to effect change within a socio-political structure; and teach critical thinking, so that citizens can evaluate complex information and make decisions for the long-term. Potter (2002) also recommended that social issues such as poverty, healthcare, and environmental protection should not be viewed as separate, but interrelated.

2.5. Evaluating Environmental Education Programmes

In many fields of development such as poverty alleviation, education, and public health, there are well-established frameworks and methods for programme evaluation (Ferraro & Pattanayak, 2006; Keene & Pullin, 2011). An advantage that these fields have is a wealth of data that spans decades, provided by national surveys, field practitioners, and government agencies (Ferraro & Pattanayak,

2006). The medical community in particular invests a considerable amount of resources in managing repositories of systematic reviews, developing evidence-based practices, and increasing data accessibility (Keene & Pullin, 2011). The environmental sector has clearly fallen behind (Ferraro & Pattanayak, 2006; Margoluis et al, 2009; Keene & Pullin, 2011).

Programme evaluation is "the systematic collection of information about the activities, characteristics, and outcomes of programmes to make judgments about the programme, improve programme effectiveness and/or inform decisions about future programming" (Patton, 2007, p. 360). In addition to these benefits, programme evaluation can add credibility to the programme's and proponents' worth, and allow managers, researchers, and practitioners to identify intended and unintended outcomes (Jacobson, 1987; Jacobson, McDuff & Monroe, 2006). Despite the popularity of EE and benefits of evaluation, there continues to be a "lack of widespread culture of evaluation" (Fien, Scott, & Tilbury, 2001, p. 379). Many EE programmes are not evaluated, or their evaluations are not made available to the public (Jacobson, 1987; Norris & Jacobson, 1998).

2.5.1. Evaluation methods and design

Prior to conducting an evaluation, it is recommended to know the following: purpose of evaluation; programme structure and circumstances; resources available; and capacity of evaluators (Margoluis et al, 2009). A wide range of quantitative and qualitative designs and methods can be applied to get different kinds of data (Ferraro & Pattanayak, 2006; Margoluis et al, 2009; Newing, 2011). Instruments must be appropriate to the respondents' literacy, age, culture, and interest (Jacobson, 1987).

Evaluation can be formative (i.e., focusing on process and gathering information during the programme) and/or summative (i.e., focusing on outcomes and conducted after the programme) (Thomson, Hoffman, & Staniforth, 2003). Summative evaluations are more commonly used (Carleton-Hug & Hug, 2010). Formative evaluations are worth conducting, especially for programmes that aim to change attitudes and behaviours (Norris & Jacobson, 1998; Carleton-Hug & Hug, 2010).

Evaluation designs can be quantitative and/or qualitative. Quantitative designs can be experimental, where subjects to be treated and not treated with an intervention are randomly assigned; quasi-experimental, where subjects to be treated and not treated are chosen; and non-experimental, where subjects are chosen as the focus of the treatment and evaluation (Ferraro & Pattanayak, 2006;

Margoluis et al 2009; Newing, 2011). Experimental and quasi-experimental designs often provide high reliability and validity, but can be costly and controversial, especially if the proposed intervention requires providing benefits to one subject over another (Ferraro & Pattanayak, 2006; Margoluis et al 2009; Newing, 2011). Non-experimental designs are suitable for environmental education programmes and social marketing campaigns (Margoluis et al, 2009). Examples of instruments used in quantitative designs are questionnaires administered to the subjects, and assessments of direct and indirect impacts of the intervention on the environment (e.g., population of a species) (Margoluis et al, 2009; Newing, 2011).

Qualitative designs focus on "the sampling framework and not statistical power" (Margoluis et al 2009, p. 80). Examples of methods to gather qualitative data are interviews, focus group discussions, participatory mapping, and journaling (Jacobson, McDuff & Monroe, 2006; Newing, 2011). Analysis of qualitative data can be difficult because it draws from anecdotes and is subject to interpretation, but it allows researchers to gain insight on the complexities of issues, how interventions are perceived, and why an intervention has succeeded or failed (Monroe, Andrews, & Biedenweg, 2008; Margoluis et al, 2009; Carleton-Hug & Hug, 2010).

2.5.2. Challenges and opportunities

In a review of EE evaluations published over 15 years, Carleton-Hug and Hug (2010) identified several challenges in EE evaluation. One is the diversity of the field. EE can be part of natural and social sciences and tourism, amongst others. Because of its interdisciplinary nature, there is no single, consolidated literature base, making it challenging for researchers and conservationists to gather information. Another common challenge is the compressed timeframe that many environmental programmes have. Long-term impacts of EE, such as collective behaviour change, increased capacity of societies, or paradigm shifts, often take longer than the short timeframes and funding cycles typical of EE programmes (Norris & Jacobson, 1998; Margoluis et al, 2009; Carleton-Hug & Hug, 2010).

In some cases, there is an institutional resistance to evaluation because there could be lack of incentives for conducting evaluations, or fear of negative results (Ferraro & Pattanayak, 2006; Margoluis et al, 2009; Carleton-Hug & Hug 2010). Competition between and among organisations, scientists, and government agencies can also contribute to resistance (Kleiman et al, 2011). Finally, even when evaluations are conducted, resources may not be sufficient to implement the recommendations that arise from the study (Carleton-Hug & Hug, 2010; Kleiman et al, 2011).

Despite these challenges, several opportunities have been identified: the burgeoning interest in the field, demonstrated by the increasing number of publications and tools for evaluation being made available; and the need for an informed population (Carlton-Hug and Hug, 2010). As environmental issues worsen, the need for EE and the evaluation of its programmes becomes increasingly urgent (Thomson, Hoffman, & Staniforth, 2003; Carlton-Hug and Hug, 2010).

2.6. Environmental Education in the Philippines

The Philippines is not short of EE strategies, frameworks, and laws. The government has produced the following documents mandating EE: the Philippine Strategy for Sustainable Development in 1989; National Strategy on Environmental Education, also in 1989; National Environmental Education Action Plan (NEEAP) for 1992-2002, followed by NEEAP 2005-2014; and Republic Act 9512, or the Environmental Awareness and Education Act of 2008 (Galang, 2010; Reyes, 2014; DENR-EMB, 2015). The latter mandates various government agencies to create programmes for students to receive science-based quality information and develop and produce EE materials, amongst others. EE is integrated into subjects such as science and moral education (DENR-BMB; Reyes, 2014). There are selected universities that offer undergraduate and postgraduate degrees in Marine Biology and Environmental Science (Galang, 2010; Reyes, 2014).

The Department of Education (DepEd) also has various EE initiatives, such as greening programmes mandating each student to plant at least 10 trees to qualify for graduation (DECS, 1996) and requiring public schools to have student-led environmental organisations (DepEd, 2003).

Little evaluation of these government programmes and policies has been conducted (Galang, 2010). When the first NEEAP period ended in 2002, a multi-sectoral workshop was organised to identify implementation gaps. Some of the issues raised included inadequate linkages between DepEd and the Department of Environment and Natural Resources (DENR); insufficiently qualified faculty; and insufficient facilities, equipment, and research funding.

There are a number of local NGOs that champion EE through experiential learning and the production of locally relevant modules. For example, Ocean-action Resource Center and Danjugan Island's EE Programme, both based in Visayas, train teachers, students, and government officials on environmental science through games, outdoor education, and modules (Domingo-Quiton, 2015). NGOs such as Marine Wildlife Watch of the Philippines and SPS use the internet and social media to

promote causes and engage the public (Domingo-Quiton, 2015). Social media platforms such as Twitter and Facebook are versatile tools with low overhead costs. They are likely to reach more educated citizens, who are also more likely to engage in pro-environmental behavior (Reyes, 2014).

Challenges of the NGOs are similar to those of the government and academia: lack of research and literature; poor documentation; little monitoring and evaluation; and insufficient funding to sustain initiatives (Quiton-Domingo, 2015). The Philippines still has a "long way to go to reach beyond the provision of specific courses and to actualise the lofty goals outlined in its policy statements" (Galang, 2010, p. 176).

3. METHODS

3.1. SEA Camp Sites

The SEA Camps were held at sites also used by the Ecosystems Improved for Sustainable Fisheries (ECOFISH) Project, an initiative funded by the U.S. Agency for International Development (USAID). Partnering with USAID-ECOFISH simplified the coordination of logistical requirements. The first three SEA Camps were held in all three major island groups to reach youth in each region. The Luzon SEA Camp was held in Calatagan, Batangas; Visayas SEA Camp in Siaton, Negros Oriental; Mindanao SEA Camp in Bongao, Tawi-Tawi; and Culminating SEA Camp in Coron, Palawan. Figure 3.1. shows the SEA Camp sites on the map of the Philippines. All sites are Marine Key Biodiversity Areas (CI, 2014). All SEA Camp venues were situated near Marine Protected Areas (MPAs), where participants had the opportunity to snorkel, take an introductory scuba diving course, and participate in a coastal cleanup in the MPA's surrounding community. Participants were intentionally exposed to well-managed and poorly managed sites to show contrasting coastal and marine environments.

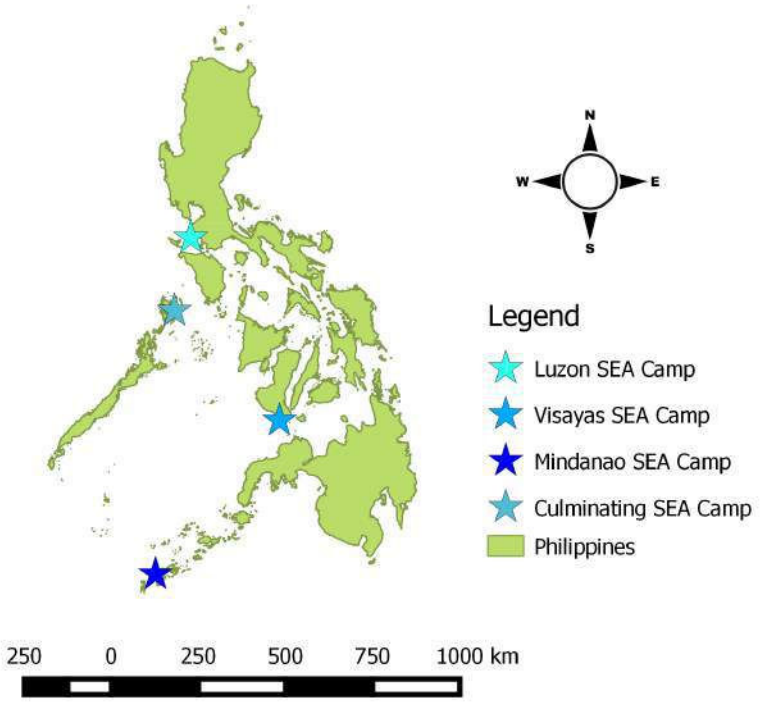

Figure 3.1. SEA Camp Sites

3.2. Ethics

Prior to the SEA Camp, all participants were emailed to inform them of the background and aim of the research project, and were asked to sign a Free, Prior, and Informed Consent form (Appendix

II). Strict guidelines were implemented to keep the confidentiality and anonymity of participants. Only the three SEA Camp staff members and four data analysts were allowed to view participants' responses. Names were needed for initial encoding and analysis, but were removed from the results and discussion. The researcher guaranteed that their answers would not affect their relationship with SPS or the U.S. Embassy-Manila. The participants were assured that they had the option to withdraw from being included in this research project.

3.3. Selection of participants

Applications for the SEA Camp were received from October-December 2014. Eighty-eight SEA Camp participants were selected from a pool of over 500 applicants nationwide who submitted their applications via email or post. In the form, applicants stated their affiliations (e.g., school, membership in organisations, employer), and explained why they wanted to join the SEA Camp, what the environmental issues in their communities were, and what solutions they could propose to solve the issues (Appendix III). The SEA Camp staff shortlisted 150 applicants (50 per region), and representatives from the U.S. Embassy-Manila assessed the shortlist. The SEA Camp staff made the final assessment to strive for gender balance, and diversity in affiliations and home location. The criteria for selection were (i) previous participation in volunteer activities or leadership roles in organisations (20%); (ii) knowledge of environmental issues in the community (30%); (iii) skills/potential skills that could make him/her an effective conservationist (30%); and (iv) capability to reach target beneficiaries of their proposed projects (20%).

3.4. Survey Design

Participants were asked to participate in five types of assessments: the pre-test (Appendix IV), reflection sheets (Appendix V), focus group discussions (FGDs), post-test (Appendix VI), and delayed post-test (Appendix VII). All assessments were unannounced so participants could not prepare for it. Tests and reflection sheets were written in English, the official second language of the Philippines. Participants had the liberty to answer open-ended questions in English and/or Filipino, the official language of the Philippines. FGDs were conducted in English and Filipino.

Assessments measured the following factors: Environmental Knowledge; Recent Pro-Environmental Behaviour; Attitude toward Pro-Environmental Behaviour; Subjective Norm; Perceived Behavioural Control; Entrepreneurial Orientation; and Civic Attitudes and Skills. The reflection sheets and FGDs examined reflexive thoughts. Items from existing instruments were adapted to fit the research objectives. These instruments included questionnaires founded upon the TPB (Ajzen, 1991; Ajzen,

2006); the entrepreneurial orientation scale and construct (Lumpkin & Dess, 1996; Hermansen-Kobulnicky & Moss, 2004; Knight, 2007), and the civic attitudes and skills questionnaire (Moely et al, 2002; Johnson et al, 2013).

3.4.1. Environmental Knowledge

Increasing environmental knowledge can arouse interest and concern in environmental issues (Hines, Hungerford, & Tomera, 1986/7; Lyons & Breakwell, 1994; Bamberg & Möser, 2008). This section assessed participants' knowledge on Philippine marine biodiversity, impacts of household items on marine life, benefits and challenges of MPAs, coastal marine ecosystems, and ability to define environmental terms. Activities designed to increase environmental knowledge were lectures from conservation professionals; games; and outdoor activities.

3.4.2. Recent Pro-Environmental Behaviour

This section had 12 items that focused on environmental activism, non-activist political behaviour, and consumer behaviour (Winther, Volk, & Hungerford, 1994; Stern, 2000; Monroe, 2003). Participants were asked how often they performed a particular behaviour with examples to quantify frequency (e.g., "Sometimes: out of the 10 chances, I do it 4-6 times.").

3.4.3. Attitude toward Pro-Environmental Behaviour, Subjective Norm, and Perceived Behavioural Control (PBC)

Each pro-environmental behaviour in the Recent Pro-Environmental Behaviour section corresponded to a measure of a participant's attitude toward the particular behaviour. For example, "I segregate wastes" in the Recent Pro-Environmental Behaviour section was linked to the attitude item "waste segregation." To measure subjective norm, participants were asked how much they agreed to items related to family and close friends, such as, "If I wanted to pursue a career in environmental conservation, my parents would support it." The section on PBC focused on external influences, such as facilities or opportunities provided by the government and communities to participate or lead in environmental activities (e.g., "The government provides opportunities for youth to participate in marine conservation activities."). Seven-point bipolar adjective scales were used to measure these factors because they were found to be optimal for TPB questionnaires (Ajzen, 2006). Bipolar adjectives for Attitude toward Pro-environmental Behaviour were "worthless" and "worthwhile," while Subjective Norm and PBC factors were "strongly disagree" and "strongly agree."

Activities to improve participants' attitudes and make them reevaluate subjective norm and PBC were interaction with local government officials and conservation professionals, and outdoor activities.

3.4.4. Entrepreneurial Orientation (EO)

EO focuses on "characterising and distinguishing key entrepreneurial processes" (Lumpkin & Dess, 1996, p. 136). Because the SEA Camp would support 30 participants to lead and implement environmental projects, the study found it appropriate to measure EO. Activities to develop EO were the project management workshop, where participants learned to write project proposals and budgets, and project pitching, where participants were required to propose an environmental project in front of panelists.

3.4.5. Civic Attitudes and Skills (CAS)

Environmental responsibility requires an "active, engaged, informed, and competent citizenry" and "widespread civic competence" (Orr, 1992, p. 84). Activities to build CAS were the multi-stakeholder meeting simulation, where participants were grouped into stakeholders to debate about a hypothetical environmental and political issue, and a workshop on writing letters to leaders. Participants were then required to write a letter to a leader in any field (e.g., government, civil society, corporation, university). The letter could be a commendation or constructive critique of an ongoing practice.

3.4.6. Reflexive Thoughts

Giving participants time to write, reflect, and discuss each day's activities may assist in processing feelings and impressions, and reveal intended and unintended programme outcomes (Jacobson, McDuff, & Monroe, 2006; Monroe, Andrews, & Biedenweg, 2008). The reflection sheet was applied as a journaling process where participants were asked what they liked, did not like, what they learned from each day's sessions, and where they thought they could apply what they learned. Space was provided for sketches and doodles. Contents of reflection sheets were discussed immediately after completion in groups of up to 10 participants. A SEA Camp staff member was assigned to each group to facilitate discussion.

3.5. Survey Implementation

The first draft of the survey was pilot-tested by nine students from Imperial College's Masters in Conservation Science. Corrections and improvements were made where appropriate. A second draft

was tested on five more individuals in the Conservation Science course and a SEA Camp staff member, and then reviewed with the project supervisor. Another round of corrections and improvements were made. Table 3.1. shows the types of assessments, factors measured, and dates completed.

Table 3.1. Types of Assessments, Factors Measured, and Dates Completed

	Pre-test	Reflection Sheets & FGDs	Post-test	Delayed post-test
Type	Quantitative	Qualitative	Quantitative	Quantitative & Qualitative
Day/s completed	Day 1	Day 1-5	Day 6	6-8 weeks after SEA Camp
Luzon SEA Camp	April 15	April 15-19	April 20	June 25-July 23
Visayas SEA Camp	April 27	April 27-May 1	May 2	
Mindanao SEA Camp	May 9	May 9-13	May 14	
Demographics & Conservation Interest	✓			
Reflexive Thoughts		✓		
Environmental Knowledge	✓		✓	
Recent Pro-Environmental Behaviour	✓			✓
Attitude Toward Pro-Environmental Behaviour	✓		✓	
Subjective Norm	✓		✓	
PBC	✓		✓	
EO	✓		✓	✓
CAS	✓		✓	✓

Note: All assessments were conducted in 2015.

After completion of the online SEA Camp delayed post-test survey (available from: https://www.surveymonkey.com/r/seacampph), data were qualitatively assessed. It was clear that a proportion of participants had misinterpreted the factor on recent pro-environmental behaviour (e.g., answered low in pro-environmental behaviour items despite showing signs of improved environmental attitudes) or left entire sections unanswered. Informal follow-ups were conducted via Facebook, and some participants reported to have misunderstood statements or had poor internet connection, resulting in incorrect, redundant, or incomplete responses. This prompted the researcher to repeat the survey on recent pro-environmental behaviour and found differences in 38 out of 88 respondents. Their answers were updated with the correct results.

3.6. Analysis

Quantitative data was managed in Microsoft Excel and analysed using RStudio, an integrated environment for R, a programming language for statistical computing and graphics (RStudio Team, 2015), specifically, the Psych Package (Revelle, 2015). Negatively worded items were included and reverse-coded to avoid participants agreeing to all statements.

The scores for each subscale and factor were summed for each participant, and mean scores for each item, subscale, and factor were calculated. The mean scores were compared using a Wilcoxon signed rank-test to determine differences before and after the SEA Camp. To determine relationships between pro-environmental behaviour and other factors measured quantitatively, the study used Kendall's tau coefficient (τ). Results were interpreted as significant at $p < 0.05$.

To test for internal consistency, McDonald's omega (ω_h) coefficients for each factor in the pre-, post-, and delayed post-tests were calculated. Though Cronbach's alpha (α) has been the most widely used estimate for internal consistency in social sciences, recent studies demonstrate that ω_h is more robust because it has less risk of overestimating or underestimating reliability, and is able to reflect dimensionality (Zinbarg et al, 2006; Knight et al, 2010; Difford, 2013; Dunn, Baguley & Brunsden, 2014; Revelle, 2015). There are no published thresholds for ω_h, but it has been suggested that values of >0.60 are acceptable (Knight et al, 2010). In this study, when ω_h of factors fell below 0.60, items with a >0.60 loading on the general factor (**g**) were deleted until the ω_h reached the suggested threshold (Difford, pers. comm, 22 August 2015).

There are no recognised directions of applying ω_h in pre-, post-, and delayed post-tests, but it has been recommended that items in the tests must be the same regardless of the ω_h (Difford, pers. comm, 24 August 2015). As an alternative, three scenarios were examined: (i) the ω_h of each factor for each test with the original items; (ii) ω_h with reduced items until acceptable ω_h were calculated; and (iii) the highest ω_h from the first two scenarios.

Qualitative data was analysed by identifying common themes that emerged from the reflection sheets and FGDs, and categorised based on the factors measured. Direct quotes from all regional camps were used to support observations. Filipino words were translated to English, and grammar and spelling were edited where necessary.

3.7. Dissemination of Results

A summary of results will be submitted to the SEA Camp participants and the U.S. Embassy-Manila. Results will be used to improve the SEA Camp if funding is secured to repeat the project. Targets for a broader dissemination are the Connect Coalition for Conservation Education, a network of local EE practitioners, and the 14th National Symposium of the Philippine Association of Marine Science in 2017.

4. RESULTS

4.1. Profile of Participants

4.1.1. Demographics

Among the 88 participants, there were 40 male (46%), 47 females (53%), and one transgender (1%). The mean age was 21 years old. Educational attainment of the participants' parents was generally high: 16% of the participants' mothers and fathers obtained postgraduate degrees, while 64% of fathers and 62% of mothers obtained college degrees. When asked to describe their family's average annual income, majority reported to be in the middle to low socioeconomic classes (Africa, 2011): 24% reported PhP603,000 (£8,454.85); 23% answered PhP191,000 (£2,678,08); and 15% reported PhP62,000 (£886). Eleven percent answered PhP1,200,000 (£16,825.57); only 3% reported PhP1,857,000 (£26,528), the highest social class; and 24% percent were unsure. See Table 4.1 for the complete profile of participants.

4.1.2. Relationship with Nature and Conservation

Participants were asked what age they were first interested in nature (i.e., natural environment) and conservation (i.e., the act of preserving, protecting, and conserving nature). Thirty-two percent became interested in nature during their early teens (13-16 years old), while 31% reported childhood (6-8 years old) (see Appendix VIII). Thirty-eight percent reported that their interest in conservation developed during their late teens (17-19 years old), while 25% said early teens (13-16) (see Appendix IX).

The most common answers for what inspired participants' interest in conservation were childhood experiences in nature (18%), education (17%), and membership in pro-environmental organisations (16%) (see Appendix X). Interestingly, the highest ranked answer for what sustains their interest in conservation, both for first choice (30%) and second choice (17%), was experiences of environmental destruction (see Appendix XI). An example of an experience was, "I was one of the typhoon Sendong[2] victims from school. I lost almost all of my belongings… What struck me the most was the number of lives it took. Illegal logging was one of the primary things to blame. Because of this event, my eagerness to help protect the environment grew stronger."

[2] Typhoon Sendong (international name Washi) made landfall on December 16, 2011. It brought 10 hours of heavy rains and triggered flashfloods in Mindanao, an area rarely hit by storms. It killed more than 1,200 Filipinos in 8 provinces (Lacuata, 2014).

Table 4.1. Profile of Participants		
Gender	**Number**	**%**
Male	40	45
Female	47	53
Transgender	1	1
Age	**Number**	**%**
18-19	24	27
20-21	38	43
22-24	26	30
Course in University	**Number**	**%**
Natural Sciences	39	44
Social Sciences	16	18
Arts & Humanities	14	16
Law & Medicine	2	2
Engineering & IT	9	10
Business & Economics	8	9
Family's Annual Income	**Number**	**%**
PhP1,857,000 (£26,528)	3	3
PhP1,200,000 (£17,143)	10	11
PhP603,000 (£8,814)	21	24
PhP191,000 (£2,728)	20	23
PhP62,000 (£886)	13	15
I don't know.	21	24
Mother's Educational Attainment	**Number**	**%**
Elementary	2	2
High School	15	17
College	56	64
Postgraduate	14	16
I don't know.	1	1
Father's Educational Attainment	**Number**	**%**
Elementary	1	1
High School	18	20
College	55	63
Postgraduate	14	16

4.2. Internal Consistency

There are no recognised applications of ω_h in pre-, post-, and delayed post-tests. As an alternative, three scenarios were examined. Table 4.2 shows the ω_h using the original number items per factor. Majority of ω_h in the post- and delayed post-test met the suggested threshold of >0.60 (see Knight et al, 2010).

Table 4.2. ω_h per factor with original items

Factor	Pre-Test ω_h	Post-Test ω_h	Delayed Post-Test ω_h
Environmental Knowledge	0.62	0.45 [a]	
Pro-Environmental Behaviour	0.41[a]		0.50 [a]
Attitude toward Behaviour	0.66	0.69	
Subjective Norm	0.40 [a]	0.69	
PBC	0.40 [a]	0.67	
EO	0.48 [a]	0.63	0.68
CAS	0.36 [a]	0.76	0.61

[a] *ω_h scores that did not meet the suggested threshold (>0.60)*

For ω_h scores that were <0.60, items were reduced until the suggested ω_h was attained. Table 4.3 shows the minimum number of items deleted and their corresponding ω_h.

Table 4.3. ω_h per factor with reduced items to meet suggested ω_h threshold

Factor	Item Reduction [b]	Pre-Test ω_h	Item Reduction [b]	Post-Test ω_h	Item Reduction [b]	Delayed Post-Test ω_h
Environmental Knowledge			33 to 25	0.61		
Pro-Environmental Behaviour	12 to 4	0.61			12 to 10	0.70
Attitude toward Pro-Environmental Behaviour						
Subjective Norm	11 to 4	0.67				
PBC	7 to 3	0.79				
EO	12 to 5	0.63				
CAS	18 to 4	0.66				

[b] *The first number represents the original number of items used for each factor, while the second number represents the number of items after items with g <0.60 were deleted to attain acceptable ω_h values.*

Deleting the same items in the corresponding factor of a different test did not consistently produce acceptable ω_h values (see Pro-Environmental Behaviour ω_h). Table 4.4 shows the highest ω_h from Tables 4.2 and 4.3.

Table 4.4. Highest ω_h per factor with least number of reduced items			
Factor	Pre-Test ω_h	Post-Test ω_h	Delayed Post-Test ω_h
Environmental Knowledge	0.62	0.60	
Pro-Environmental Behaviour	0.61		0.70
Attitude toward Pro-Environmental Behaviour	0.66	0.69	
Subjective Norm	0.67	0.69	
PBC	0.79	0.67	
EO	0.63	0.63	0.68
CAS	0.66	0.76	0.61

4.3. Environmental Knowledge

Environmental Knowledge scores significantly increased in the post-test (p <0.05). It was observed that participants who had natural science backgrounds were more likely to have correct answers. Table 4.5 shows scores for each subscale and overall scores.

Table 4.5. Pre- and Post-Test Results: Environmental Knowledge					
Subscales	Pre-Test		Post-Test		p
	Mean	SD	Mean	SD	
Philippine Biodiversity	2.40	1.29	4.01	1.06	0.00***
Impact of Household Items on Marine Life	3.22	1.36	4.33	1.07	0.00***
Definition of Environmental Terms	5.18	2.01	6.10	1.59	0.00***
Benefits and Challenges of MPAs	4.41	2.43	4.94	2.03	0.03*
Coastal Marine Ecosystems	6.84	8.96	18.02	7.32	0.00***
TOTAL	**22.05**	**11.76**	**37.41**	**9.63**	**0.00*** **

* p <0.05
*** p <0.001

Answers to the questions were discussed after the pre-test. Many participants said that the pre-test made them realise how much they did not know.

Table 4.6. Direct quotes from reflection sheets on lessons from the pre-test
New ideas or misconceptions [were] clarified like the fact that corals are not a stone but an animal.
[My biggest realisation was] knowing that a starfish was not a fish.
I learned the many forms of habitats like corals, seagrass, and mangroves. I also realised that I have a lot of learning… to be a conservationist.

The lack of knowledge made some participants feel embarrassed and "dumb." Several participants expressed that they knew what seagrass beds, coral reefs, and mangroves were, but did not know

they were categorised as coastal marine ecosystems. Table 4.7 shows direct quotes from the reflection sheets on what they felt about the pre-test.

Table 4.7. Direct quotes from reflection sheets on feelings about the pre-test
I felt dumb after doing [the pre-test].
I wasn't ready for [the pre-test]. I thought I was, but I really wasn't, and I severely lack knowledge.
[The pre-test] made me doubt 14 years of education.

The reflection sheets showed that information on impacts of household items on marine life began influencing intent for pro-environmental behaviour. See Table 4.8.

Table 4.8. Direct quotes from reflection sheets on the impacts of household items
When buying groceries, I'd choose products that are more environment-friendly.
These activities will remind me to use less trash. Less trash means a better world for our sea critters.
I realised the consequences of the actions I've been doing, such as using [soap] that produce "microbeads," which don't dissolve in seawater. I also learned about how sulfates in some shampoos can affect fish, when it sticks to their scales.

4.4. Attitude toward Pro-Environmental Behaviour, Subjective Norm, and PBC

Overall scores for Attitude toward Pro-Environmental Behaviour and PBC increased in the post-test, but only Attitude showed a significant difference. Table 4.9 shows the scores for each factor.

Table 4.9. Pre- and Post-Test Results: Attitude toward Pro-Environmental Behaviour, Subjective Norm, and PBC

Factor	Pre-Test		Post-Test		*p*
	Mean	SD	Mean	SD	
Attitude toward Pro-Environmental Behaviour	69.24	13.26	73.52	12.84	0.00***
Subjective Norm	54.17	12.89	54.04	12.96	0.69
PBC	28.73	8.06	29.85	8.74	0.11

*** $p < 0.001$

Subjective Norm and PBC items in the assessments focused on external influences. Direct quotes from the delayed post-test, however, revealed that the participants had taken action to change their subjective norm by influencing family, friends, and colleagues to engage in pro-environmental behaviour. See Table 4.10.

Table 4.10. Direct quotes from delayed post-test on changing subjective norm
I started convincing my friends not to use straws. I shared the things that I learned during SEA Camp, especially about the use of beauty products that may harm our seas.
My mother now uses reusable bags when going to the [market].
In our office, we used to use plastics and paper plates when we take our lunch. For one month now, we are using washable/reusable utensils and wares to reduce wastes.

The reflection sheets also provided insight that many of the participants' internal PBC was improving as they understood the value of individual responsibility. Quotes from the reflection sheets showed

three common themes that could have influenced positive changes in attitude, internal PBC, and confidence to change subjective norms: (i) realisation that conservation is an interdisciplinary field, which is related to (ii) the value of individual responsibility; and (iii) outdoor education as a means to build affinity with nature and inspire pro-environmental behaviour.

4.4.1. Conservation as an interdisciplinary field and the value of individual responsibility

At the beginning of every SEA Camp, a general sentiment that emerged from the reflection sheets and FGDs was lack of self-belief by the participants about their capability to be conservationists, particularly from those who came from non-natural science backgrounds. Several participants expressed that they did not know why they were chosen for the SEA Camp, because they were not "marine biologists," "experts," or "scientists."

In anticipation of this, the SEA Camp was designed to showcase the interdisciplinary nature of conservation by selecting participants with different backgrounds and interests, inviting speakers from different fields (e.g., arts, law enforcement, government, business), and holding workshops on communications and budget management. By showing different facets of conservation, many participants began to feel more confident about discovering their personal roles in conservation. They also realised that individuals could make a positive impact on the environment. Table 4.11 shows direct quotes from reflection sheets supporting this observation.

Table 4.11. Direct quotes from reflection sheets on conservation as an interdisciplinary field and the value of individual responsibility
Since the participants came from different backgrounds, it made me realise that marine conservation or conservation in general does not necessarily include only one field, but it is possible even if people come from different fields.
I realised that there is no need to be [in] the field of environment in order for me to be a conservationist. As long as I have the passion to save our environment, I can be a conservationist in my own way.
Marine conservation is a huge job that requires a lot of cooperation from different levels in the community. In order for us to bring or do anything significant, we need to understand and accept that we can never do it alone or as a science. We need everyone.

4.4.2. Outdoor education as a means to build affinity with nature and inspire pro-environmental behaviour

Among the 88 SEA Camp participants, 30% snorkeled for the first time, while 80% tried scuba diving for the first time during the SEA Camp. For a few participants, it was their first time in seawater. The reflection sheets showed that a considerable number of participants identified snorkeling and/or scuba diving as their favourite activities for the day. Many expressed that the activities gave them a chance to have "a personal encounter with marine life."

In every SEA Camp, a few participants noted that seeing marine debris was one of their least favourite experiences. A participant wrote that his least favourite activity was the coastal cleanup: "I hate the fact that we have to hold such an activity because there are irresponsible people throwing trash into the sea."

Direct quotes from reflection sheets showed that outdoor education began to build affinity with nature and inspired intent for pro-environmental behaviour.

Table 4.12. Direct quotes from reflection sheets on outdoor education
With the experience I had today, it made me more passionate and I was motivated to be an advocate of not just marine conservation but the whole environment as well.
I realized that if all people [have] the ability to see what's under the water, maybe they [would] be [convinced] enough to stop doing things that can harm our nature.
Experience is a powerful key to make people change their perspective in marine conservation (and life) and see how important it is to all of us. The ocean gives us so much and we have to give back and take care of it.

4.5. Entrepreneurial Orientation

Overall scores for EO significantly increased from the pre- to post-tests, and post- to delayed post-tests (p <0.001). See Tables 4.13 and 4.14.

Table 4.13. Pre-, Post- and Delayed Post-Test Results: Entrepreneurial Orientation

Subscales	Pre-Test		Post-Test		Delayed Post-Test	
	Mean	SD	Mean	SD	Mean	SD
Need for Achievement	12.43	2.81	13.33	3.67	13.68	3.73
Autonomy	25.60	5.49	25.59	7.15	25.56	7.16
Risk-taking	12.93	2.94	13.87	3.81	13.16	3.79
Innovativeness	24.42	5.76	24.74	7.43	25.32	7.34
Proactiveness	17.14	3.82	17.09	4.93	17.22	4.73
TOTAL	**92.51**	**8.71**	**94.86**	**9.14**	**96.78**	**7.66**

Table 4.14. Comparison of EO Results

Subscales	Pre- and Post-Test	Post- and Delayed Post-Test	Pre- and Delayed Post-Test
Need for Achievement	0.00***	0.07	0.00***
Autonomy	0.30	0.19	0.01**
Risk-taking	0.27	0.28	0.03*
Innovativeness	0.00***	0.39	0.02*
Proactiveness	0.27	0.90	0.09
TOTAL	**0.00*** **	**0.00*** **	**0.02***

*p <0.05
** p <0.01
*** p <0.001

The reflection sheets revealed that a few participants began to feel more confident about taking risks and being more proactive. For example, a participant wrote, "I think I will be braver than before." Another stated, "I need to open myself to other opportunities."

4.6. Civic Attitudes and Skills

Overall scores for CAS significantly increased between pre- and post-tests (p <0.001), while the post- and delayed post-tests had similar scores. See Tables 4.15 and 4.16.

Table 4.15. Pre-, Post- and Delayed Post-Test Results: Civic Attitudes and Skills

Subscales	Pre-Test		Post-Test		Delayed Post-Test	
	Mean	SD	Mean	SD	Mean	SD
Civic Action	17.52	2.65	18.15	4.4	18.76	4.3
Interpersonal Skills	9.83	1.08	9.75	2.74	8.98	1.89
Political Awareness	16.43	3.44	16.72	4.53	17.16	4.4
Leadership Skills	13.28	2.81	14.7	4.15	14.6	3.6
Social Justice Attitudes	16.76	3.45	16.55	4.31	16.33	4.61
TOTAL	**73.82**	**5.83**	**75.87**	**6.68**	**75.83**	**5.83**

Table 4.16. Comparison of CAS Results

Subscales	Pre- and Post-Test	Post- and Delayed Post-Test	Pre- and Delayed Post-Test
Civic Action	0.01**	0.12	0.46
Interpersonal Skills	0.14	0.57	0.02*
Political Awareness	0.46	0.43	0.09
Leadership Skills	0.06	0.02*	0.00***
Social Justice Attitudes	0.51	0.81	0.66
TOTAL	0.00***	0.91	0.01**

*p <0.05
**p <0.01
*** p <0.001

Based on the reflection sheets and delayed post-tests, two activities showed a positive impact on the participants' CAS: the multi-stakeholder meeting simulation and workshop on writing letters to leaders. In relation to the multi-stakeholder meeting simulation, a participant stated, "It's always important to listen to everyone's stance in a particular issue." Another one commented, "Teamwork is really important."

As a response to the workshop on writing letters to leaders, a participant wrote, "We have to talk to people who are in power if we have to." Another participant shared: "I did not think, before SEA Camp, that I could directly ask or write to people in the position to voice out my opinion or ask for

support. I was cynical about even getting a response but the people in SEA Camp showed me that it could be done." Anecdotes in the delayed post-test showed other initiatives for civic action.

Table 4.17. Direct quotes from the delayed post-test related to civic action
I talked to our school administration and I was able to convince them not to use plastic utensils in our cafeteria including stirrers and straws.
I discouraged organisations to use plastic balloons in their events. I'm currently writing a resolution to [ban] it in our school.
I proposed to procure trash bins to be detailed in different areas within the compound of our office.
I always try to explain to [restaurants] and food chains not to serve straws when the customers do not ask for it.

4.7. Pro-Environmental Behaviour

Overall scores for pro-environmental behaviour significantly increased from the pre- to delayed post-test ($p < 0.001$). Scores of 10 items significantly increased ($p < 0.05$), while two decreased. See Table 4.18.

Table 4.18. Pre- and Delayed Post-Test Results: Pro-Environmental Behaviour

Pro-Environmental Behaviour	Pre-Test		Delayed Post-Test		*P*
	Mean	SD	Mean	SD	
I segregate wastes.	4.89	0.32	4.32	0.86	0.00***
I throw wastes in the trash bin	3.68	1.61	4.96	0.19	0.00***
I belong to an environmental organisation.[c]	3.13	1.68	3.62	1.55	0.02*
I have volunteered for an environmental organisation.	2.03	1.68	3.70	1.58	0.00***
I have held a leadership position in an environmental organisation.	3.04	1.19	3.60	0.49	0.02*
I bring a reusable bag when I shop.	3.95	1.00	3.83	1.03	0.23
I bring a reusable water bottle and refill it instead of buying plastic bottles.	4.07	0.83	4.49	0.87	0.00***
I read news about the environment and conservation.	2.29	1.08	4.46	0.74	0.00***
I contact people in power to report environmental violations that I see.	2.52	1.17	3.23	1.33	0.00***
I find out how my seafood was sourced – where it was from and how it was caught.	2.54	1.20	3.04	1.26	0.00***
I check the ingredients of my personal care products (e.g., shampoo, soap, facial wash).	2.78	1.62	3.67	1.22	0.00***
I have signed an online petition about an environmental issue.	2.51	1.21	3.14	1.68	0.01**
TOTAL	**35.91**	**98.92**	**43.98**	**9.66**	**0.00*** **

[c] *Rewritten to "I have joined an environmental organisation since the SEA Camp." for the delayed post-test*

*$p < 0.05$

**$p < 0.01$

*** $p < 0.001$

During the SEA Camp, reflection sheets showed two common themes related to intention for pro-environmental behaviour: waste management and social media use. Table 4.19 shows direct quotes from participants as a response to the prompt, "When I go back to school/work, I want to take action on…"

Table 4.19. Direct quotes from reflection sheets on intention for behaviour change
[Avoiding] plastic and other stuff that could lead to the destruction of our natural resources and encourage others to do the same.
Managing wastes (especially cellophanes/plastics) just by using them as crafts.
Solid waste management and convince/motivate others to be more eco-friendly.
My social media accounts.
Social media campaigns about marine conservation

Among the pro-environmental behaviour items, the statement that had the largest increase was, "I read news about the environment and conservation." In the delayed post-test, 19 participants (22% of respondents) added that they began using their social media accounts to share environment and conservation issues. See Table 4.20.

Table 4.20. Direct quotes from the delayed post-test on using social media
I became active [on] social media and started [reading about] environmental issues. I lessen posting about my personal life and started sharing educational facts.
My current Facebook timeline compared to my Facebook timeline prior to the SEA Camp contains more news/clips/photos/posts about conservation. Now I feel that I am sharing more relevant issues and information than I did before SEA Camp.
I am taking advantage of the digital and social media space to share my advocacy and hopefully inspire other people.

The items that showed a decrease were, "I segregate my wastes" (p <0.001) and "I bring a reusable bag when I shop." For validation, an email was sent to 15 respondents who reported a decrease of more than two points. Six participants replied. Selected quotes from their responses are shown in Table 4.21.

Table 4.21. Direct quotes from participants on waste segregation and reusable bags
Before the SEA Camp I thought my segregation was good enough. Post-SEA Camp, I realised I wasn't doing enough.
My behaviour towards segregation depends on where I'm staying. In the [city], I realised that it doesn't make sense if I segregate because our city government doesn't make any initiative to segregate. Even if we segregate our wastes, if the trash is mixed in the dumpsite, in the end, there's no sense.
I went back to my hometown [from the city] after the SEA Camp and since then, my usual purchases in the wet market come with plastic bags. Still finding a way to lessen plastic bag use (already tried a sack and mesh bag).

4.8. Explaining Pro-environmental Behaviour

The correlation coefficients (**τ**) between all factors with pro-environmental behaviour were positive (**τ** = +0.00). With the exception of the EO and pro-environmental behaviour correlation in the pre-test, all correlation coefficients were below 0.30, which suggests that relationships were weak (Fishbein & Ajzen, 2010). Two out of six relationships showed significance in the pre-test, four out of six in the post-test, and one out of two in the delayed post-test ($p < 0.05$). Table 4.22 shows the **τ** of each relationship.

Table 4.22. Correlations between Pro-Environmental Behaviours and Factors

Factors	Pre-Test		Post-Test		Delayed Post-Test	
	τ	*p*	**τ**	*p*	**τ**	*p*
Environmental Knowledge	0.03	0.64	0.10	0.02*		
Attitude toward the Behaviour	0.22	0.03*	0.20	0.04*		
Subjective Norm	0.16	0.09	0.18	0.02*		
PBC	0.06	0.55	0.26	0.01**		
EO	0.36	0.00***	0.19	0.08	0.14	0.06
CAS	0.11	0.03*	0.11	0.18	0.17	0.04*

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

5. DISCUSSION

The results of this study suggest several relationships. Instead of discussing each statistically significant finding, a summary of key results, observations, and inferences are presented, along with lessons from the evaluation and considerations for future SEA Camps.

5.1. Importance of EE targeting children and adolescents

Results showed that majority of participants became interested in nature during their childhood and early teens, and majority of participants became interested in conservation during their early teens and late teens. This affirms previous studies that this life phase is crucial in fostering emotional affinity with nature and engaging young people to become environmentally responsible citizens (see Shepard & Speelman, 1986; Dettmann-Easler & Pease, 1999; Wray-Lake, Flanagan, & Osgood, 2010). This finding presents a possibility of modifying the SEA Camp curricula for younger audiences. A SEA Camp for children could focus on exploring and understanding the natural environment and domestic pro-environmental behaviours (e.g., waste segregation), while a SEA Camp for early and late teens could introduce more complex and abstract environmental issues and introduce pro-environmental behaviours related to civic action (e.g., writing letters to leaders, signing petitions) (Dresner & Gill, 1994; Monroe, 2003).

5.2. Environmental knowledge: what to teach and why

The low pre-test scores in the Environmental Knowledge section is an area of concern. The poor quality of scientific and technical knowledge that many participants presented in the pre-test reflects the quality of EE in the Philippines. While EE is mandated to be part of the national educational curriculum, the pre-test and reflection sheets suggest that marine ecosystems and marine conservation may not be a priority of existing modules. This demonstrates the need for the SEA Camp and similar programmes. To bridge the gap, SPS could form relationships with other EE programmes, DENR, and DepEd to bring the SEA Camp to formal education avenues and facilitate information exchange.

The relationship between the post-test knowledge scores and pro-environmental behaviour was positive and significant, indicating that the increase in knowledge contributed to the increase in behaviour. The reflection sheets showed that understanding the negative and positive impacts of consumption patterns influenced the participants' intention to engage in pro-environmental behaviour. Emphasis on individual responsibility also positively affected the participants' PBC.

Focusing on an individual's capacity to effect change can avoid the "psychology of despair" and instead "bring a sense of hope and gratification" (Hudson, 2001, p. 287).

Figure 5.1. A doodle from a reflection sheet

Thus, EE must not only teach scientific and technical information, but also how our daily choices affects the environment and present ways to engage in pro-environmental behaviour (Hudson, 2001; Potter, 2002; Blumstein and Saylan, 2007). Positive changes in individual and collective consumer behaviour, e.g., reducing plastic use, is necessary in the Philippines, which recently ranked third in the list of countries mismanaging solid wastes after China and Indonesia (Jambeck, Geyer, Wilcox, et al., 2015).

The SEA Camp brought to light gaps in what is being taught, what is *not* being taught, and *how* EE is being taught in the Philippines. It is most important, perhaps, to ask and answer what we are teaching EE for. As the Philippines' environment worsens, EE that creates a culture of pro-environmental behaviour becomes increasingly urgent.

5.3. Developing positive attitudes toward pro-environmental behaviour

Among the three determinants of behavioural intent in the TPB (Ajzen, 1985), what merits attention in this study is the factor that measured attitude toward pro-environmental behaviour. It showed significant increase between the pre- and post-tests, and a significant relationship to pro-environmental behaviour in the pre- and post-tests. Subjective Norm and PBC scores between the pre- and post-test were not significantly different, possibly because the items measured external influences that were unlikely to change during the course of the 6-day camps. The positive and significant relationship between attitude and pro-environmental behaviour indicates that if attitudes

improve, pro-environmental behaviour could increase. Positive attitudes are critical in avoiding the psychology of despair (Dressner & Gill, 1994; Hudson, 2011).

The pre- and post-tests failed to quantitatively measure internal PBC, but anecdotes from the reflection sheets and delayed post-tests demonstrated that the participants' perceived ability to engage in pro-environmental behaviour improved during and after the camp. This manifested in the increase in pro-environmental behaviour and civic action. Anecdotes from the reflection sheets and delayed post-tests also showed that many participants did not feel constrained by external influences, and instead felt they could change subjective norm by initiating campaigns, writing letters to leaders, and influencing their social circles to engage in pro-environmental behaviour.

5.4. Outdoor education as a means to inspire pro-environmental behaviour

The SEA Camp participants were intentionally exposed to well-managed MPAs and coastal communities with high marine debris to illustrate a realistic view of conservation initiatives and challenges. Experiencing high and low quality ecosystems triggered strong emotions in participants, many of whom felt motivated to commit to pro-environmental behaviour afterwards. Witnessing environmental destruction has been influential in sustaining majority of the participants' interest in conservation, and motivating them to advocate for environmental protection.

These findings indicate that outdoor education and exposure to different environments could be instrumental in inspiring pro-environmental behavior. The Philippines' high number of species and species endemism (DENR-BMB, 2014) presents a promising opportunity for young people to appreciate, respect, and build an emotional affinity with nature. With more than 60% of Filipinos living in coastal areas (DENR-BMB, 2014), young people have spaces to explore their natural marine environment. Such activities must be guided carefully so that questions, tasks, and discussions afterwards lead to positive changes in consumption patterns (Shepard & Speelman, 1986; Dresner & Gill, 1994; Monroe, 2003).

Figure 5.2. A SEA Camp participant snorkels in an MPA

Figure 5.3. SEA Camp participants conduct a coastal cleanup

5.5. Forming environmental and civic responsibility

CAS scores between the pre- and post-tests increased significantly, and remained similar between the post- and delayed post-tests. The relationship between CAS and pro-environmental behaviour was positive and significant for both the pre- and delayed post-tests.

These findings demonstrate that the SEA Camp helped form and strengthen civic attitudes and skills. These results also suggest several possibilities: (i) low scores in CAS and pro-environmental behaviours related to CAS (e.g., contacting people in power, signing online petitions) before the SEA Camp reflects the "failure of schools" and perhaps even families in teaching such skills and forming civic attitudes (Fien, 2009, p. 11); (ii) significant increase in CAS post-test scores

contributed to the increase in pro-environmental behaviour scores after the SEA Camp; and (iii) increased CAS levels were sustained from the end of the SEA Camp until the delayed post-test was administered.

The correlation between CAS and pro-environmental behaviour supports previous studies that EE programmes not only develop environmental responsibility, but also fosters civic responsibility (see Fien, 2007; Schusler & Krasny, 2007; Schusler et al, 2009). Strengthening CAS may help participants place environmental issues in a larger context, enabling them to connect these issues to other social issues such as economics, politics, and healthcare, and make them aware of the interconnectedness of choices and consequences (Potter, 2002; Monroe 2003). The participants' self-reported civic actions related to pro-environmental behaviour in the delayed post-test (e.g., writing letters to leaders, promoting pro-environmental behaviour in their schools and workplaces) exhibited their capacity to proactively contribute to community transformation and development (Schuler, 2007; Schuler, 2009).

5.6. Examining pro-environmental behaviours

5.6.1. Waste segregation

Only the item on waste segregation had a significant decrease from the pre- to delayed post-test. This result was not anticipated. The anecdotes from the participants whose scores decreased suggest that waste segregation is more difficult to do consistently because it relies heavily on external influences, such as presence of multiple waste bins and compost pits.

5.6.2. Opportunities for leadership and volunteerism

Volunteering for an environmental organisation, activity, or initiative significantly increased within a short amount of time. This could mean that there are volunteer opportunities available if participants were encouraged to look for them. A few participants reported volunteering for organisations and speakers they encountered during the camp. The SEA Camp could build on this by exploring collaborations between organisations that could offer volunteer placements or employment for SEA Camp alumni.

Holding a leadership position in an environmental activity also increased significantly between the pre- and delayed post-tests. It was observed that the increase in scores for holding leadership positions were from the 30 participants who received grants to lead projects. The opportunity to initiate and lead environmental projects could have contributed to the significant increase in EO

scores between the post- and delayed post-test. Anecdotes from the delayed post-test also showed that SEA Camp participants volunteered for projects of grant recipients, exhibiting an unintended outcome that projects supported by the SEA Camp became avenues for more youth to engage in environmental activities.

5.6.3. Potential of using social media for positive behaviour change

The largest increase among pro-environmental behaviour items was on reading news about environment and conservation. As demonstrated by the SEA Camp and other studies, increase in knowledge can lead to pro-environmental behaviour (e.g., Hines, Hungerford & Tomera, 1986/87; Kruse & Card, 2004; Bamberg and Möser, 2007). Many participants added that they had been using social media to share conservation-related issues since the SEA Camp. These findings do not come as a surprise because the Philippines has been called the "social media capital of the world," where Filipinos use social media platforms 53 hours a week—11 more hours than the global average (Vince, 2014).

EE can take advantage of social media as a tool to raise awareness on the positive and negative impacts of consumption patterns on the environment, and encourage pro-environmental behaviour. The challenge would be to ensure behaviour change and civic action offline. Social media has shown to be effective in raising awareness, recruiting volunteers, and raising funds for health-related issues such as amyotrophic lateral sclerosis (see Cox, 2015); testicular cancer (see Movember Foundation, 2015); and long-term medical hair loss (see Locks of Love, 2015). The use of social media for positive individual and collective behaviour change is an opportunity for further research.

5.6.4. Sustaining pro-environmental behaviours

The significant increase in pro-environmental behaviour among the SEA Camp participants raises questions on how these could be sustained. Past studies have shown that affirmation from parents and continued reinforcement in schools contribute to sustainability of pro-environmental behaviours (Dresner & Gill, 1994; Monroe 2003).

Reinforcement could also come from youth groups and community programmes (Monroe, 2003). The personal and professional networks formed in the SEA Camp opens up possibilities to sustain the positive changes, and presents potential for EE programmes to include learning opportunities with teachers and families (Monroe, 2003).

5.7. Lessons from the evaluation

5.7.1. Types of data and evaluations

Both qualitative and quantitative data were beneficial in the formative and summative evaluations of the SEA Camp. The advantages of using quantitative data were: (i) being able to analyse data using statistical software (Newing, 2011); (ii) being able to show differences and relationships among factors through numbers, which may be easier to communicate to the funder compared to anecdotes from selected participants; and (iii) creating a benchmark method for data to be gathered and analysed in future SEA Camps.

Attention must be given to formative evaluation, especially in EE where it is not often applied (Norris & Jacobson, 1998; Carleton-Hug & Hug, 2010). Reflection sheets and FGDs provided information to the SEA Camp organisers that could have been missed with only quantitative assessments. The reflection sheets were especially helpful for the quiet and introverted participants, or those who were intimidated by the organisers. For example, a participate wrote, "I find it hard to share my thoughts to everyone and I know I must work on this." Another participant shared, "I fear that I don't have a better idea than others." By reading these, the organisers were able to address issues in the participants' lack of self-confidence during the camp, either during the FGDs or in private.

Qualitative data also revealed issues related to culture and religion that needed to be addressed. For example, in the Mindanao SEA Camp evaluation, two Muslin participants wrote that they needed time for prayer. The SEA Camp organisers were unaware of this practice.

5.7.2. Benefits of the evaluation

One of the advantages of the SEA Camp's programme design was that there were four consecutive camps. Constructive feedback from one camp was applied to the following camps to maximise effectiveness of the programme and engagement of participants. For example, input from participants showed that selected activities could be more effective if they were moved to another part of the day (e.g., placing physically demanding games later in the afternoon when temperature was cooler instead of after lunch), or moved to a different day (e.g., incorporating more group activities on the first day to create interaction among participants earlier). The evaluation also identified which activities, materials, and logistical requirements could be modified or removed to make efficient use of financial resources.

5.7.3. Limitations of the evaluation

Both qualitative and quantitative data relied on self-reported answers from the participants. Results may be different if their family, friends, and teachers were asked to observe differences in their knowledge, attitudes, and behaviours before and after the SEA Camp (see Dresner & Gill, 1994; Zint et al, 2002). Likewise, the participants' self-reported behaviours may be different from actual behaviours if they provided socially desirable responses (Olli, Grendstad, and Wollebaek, 2001; Ewert & Gallaway, 2004).

Due to time constraints of the research period, the delayed post-test was administered six to eight weeks after the SEA Camp. The results of the participants' behaviours may differ if the delayed post-test were to be administered at a later time (Shepard & Speelman, 1986; Carleton-Hug & Hug, 2010). The advantage of the short timeframe is seeing the short-term effects of the SEA Camp and being able to report these to the funder. Furthermore, while all three regional SEA Camps had similar curricula, each one had a different set of speakers and sites, which could have affected the content, delivery of information, and retention of knowledge (Johnson et al, 2013).

Measuring internal consistency was a challenge due to the limited application of ω_h in pre- and post-tests. It was observed that ω_h scores in the post-tests were generally higher than the pre-tests, which could be because pre-test scores were significantly lower than post-test scores. When items were deleted from the pre-test to increase ω_h scores, deleting the same items from the post-test did not consistently yield ω_h scores in the acceptable threshold. This presents an area for further research.

5.8. Consideration for future SEA Camps

If more SEA Camps are implemented in the future, several recommendations have been identified. First is to decrease the number of participants per camp from 30 to 20 and number of grant recipients from 10 to 5. The smaller number of participants and recipients will be easier for the organisers to manage, make the selection for grants more competitive, and decrease costs of the programme drastically.

Another recommendation is for the number of days to be extended from six to seven, and have fewer activities per day. SEA Camp activities generally began at 7:00AM and ended at 11:00PM, which was physically and mentally exhausting for organisers and participants. A longer, more relaxed SEA Camp could be beneficial to the participants' engagement. Previous studies have shown that

participants who joined programmes with longer days developed higher positive attitudes toward conservation compared to participants who joined similar programmes with a shorter number of days (see Shepard & Speelman, 1986; Zint et al, 2002).

More outdoor activities could be added. Outdoor activities that would not incur high costs could be taking a walk within and around the SEA Camp venues to observe the natural environment, stargazing, and meditation.

Factors measured in this study could be measured again to observe possible trends and/or differences over time. A revision of the pre- and post-tests could include items related to religion; religion in the Philippines has been a strong influence on politics, culture, and social relations (Burkhardt, 2011; Orillaza, 2013). A number of reflection sheets made references to a deity. A Muslim participant wrote, "I am thankful that Allah… showed me my new purpose of life – conservation." A Catholic participant stated, "We are blessed with this beautiful scenic place by God, and we should be stewards of the environment, not the destroyer."

Another area of interest would be to compare attitudes and concerns of participants in regional SEA Camps. Each region has its own reputation, challenges, and subcultures (Abanes, 2014), and knowledge of which could be used to develop locally relevant programmes aiming to shape environmental attitudes and behaviours. Finally, the delayed post-test could be administered at a later time (e.g., six months after) to determine if positive attitudes and pro-environmental behaviours were sustained.

5.9. Implications

The evaluation of the SEA Camp has accomplished more than fulfilling the reporting requirement of its funder; it has provided data to support future applications for funding. As of September 2015, SPS has been invited to apply for another U.S. Embassy grant, specifically for EE in the same site of the Mindanao SEA Camp. Findings from this study are being used to write the proposal, and propose for an improved SEA Camp in 2017.

This study is not proposing that EE should only be limited to children and youth; younger people are only easier to reach because of formal education and organised youth groups (Monroe, 2003). One of the strengths of the SEA Camp is that it is scalable and replicable. SPS is open to designing SEA

Camps for older age brackets (e.g., young professionals), or specific professions (e.g., teachers, directors of sustainability programmes, entrepreneurs).

The researcher will be collaborating with Connect Coalition for Conservation Education, a network of Philippine-based EE practitioners, to develop monitoring and evaluation methods in EE programmes. Lastly, summative and formative evaluations are being integrated into SPS projects.

5.10. Concluding thoughts

One of the biggest challenges in evaluating EE programmes is that the extent of their impact and ability to change someone's life is difficult, if not impossible, to measure (Kool, cited in Thomson, Hoffman, & Staniforth, 2003). For example, this study focused on evaluating the SEA Camp's effect on the participants' self-reported knowledge, attitudes, and behaviour, but there are other outcomes, such as friendships built among participants, and personal and professional relationships that formed between organisers and participants, that have had positive impacts beyond the scope of environmental knowledge, attitudes, and behaviour.

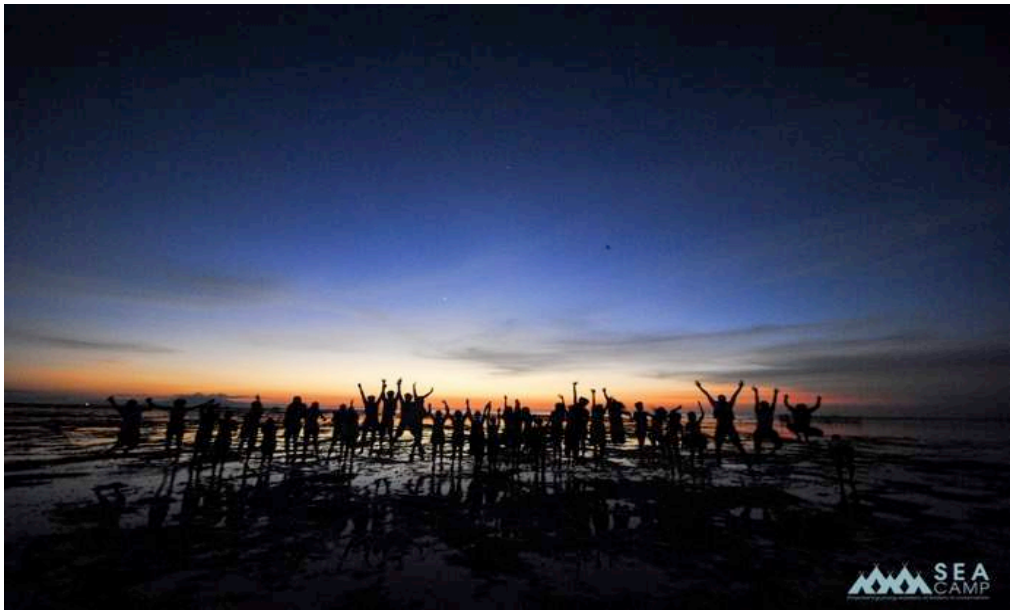

Figure 5.4. Luzon SEA Camp group photo

Nevertheless, the current methods applied to evaluate the SEA Camp proved to be valuable. Given the limited timeframe of the research period, participants already reported increase in knowledge, positive attitudes, and engagement in pro-environmental behaviours and civic action. This suggests that EE interventions targeting young people can form environmentally responsible citizens.

Furthermore, the SEA Camp helped young people become aware of their untapped potential, offered opportunities to lead their own environmental initiatives, and provided a personal and professional network to nurture and sustain their activities. The Philippines, a country with some of the most abundant—and most polluted—natural resources in the world would benefit highly from prioritising a kind of EE that empowers young people.

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APPENDIX I: LUZON SEA Camp Schedule

Dates: April 15-21, 2015 **Venue:** Lago de Oro, Brgy. Balibago, Calatagan, Batangas

TIME	ACTIVITY	SPEAKERS	VENUE
APRIL 15 - DAY 1: ARRIVAL AND REGISTRATION OF PARTICIPANTS			
11:00 AM	**ETA Participants I**		Lago de Oro
12:00PM	**ETA Participants II**		
12:00-13:00	Lunch		
13:00-15:00	Check-in and Rest		
15:00-16:00	Icebreaker (Introductions of Participants and SEA Camp Team), SEA Camp Pre-Test (unannounced)	Facilitator: SEA Camp Team	
16:00-17:00	Overview of the Camp and Expectations Setting		
17:00-18:30	Introduction to SPS and Marine Conversations		
18:30-19:30	Dinner		
19:30-20:00	Feedback Session		
APRIL 16 - DAY 2: GOING DOWN DEEP			
0700-0800	Breakfast		Lago de Oro
0800-0900	Game and Discussion: Dynamite – Storm – Illegal Logging	Facilitator: SEA Camp Team	
0900-0930	Keynote Speech	Vice Mayor Glenn Z. Aytona	
0930-1200	**Panel Discussion: Overview of the Philippine Seas**		
0930-0950	Status, Issues, and Threats	Abigail Lois P. Aguilar and Jenny Tuazon, Greenpeace	
0950-1020	Importance and Benefits of MPAs	Robert Young Fidler III, Florida Institute of Technology/UP Marine Science Institute (MSI)	
1020-1040	Environmental Laws	Marlito Guidote, ECOFISH	
1040-1100	Q&A and AM Snacks		
1100-1120	Coral Restoration	Sally Feng, University of Illinois at Urbana-Champaign / UP MSI	
1120-1140	Advocacy and Awareness Campaigns	Dino Busilig, Calatagan Eco-Savers School Association	
1140-1200	Q&A		
1200-1300	Lunch		

1300-1900	Project Management Workshop and Activities	Carlie Dario, Mind Musuem and SEA Camp Team	
1900-2000	Dinner		
2000-2100	Feedback Session		
APRIL 17 - DAY 3: GOOD SEATIZENSHIP			
6:00-6:20	Nature Walk/Coastal Clean Up	Jessie de los Reyes	Calatagan Mangrove Development Alliance (CALMADA), Barangay Balibago
6:20-6:40	Breakfast		
6:40-7:00	Site Orientation		
7:00-7:30	Mangrove Nursery/Plantation Tour		
7:40-8:00	Coastal-community based livelihood programs in the area	Dennis de Guzman (LGU Calatagan)	
8:00-08:30	Travel - Balibago to Ang Pulo Mangrove Park	TRAVEL (45 PAX)	Ang Pulo, Calatagan Mangrove Forest Conservation Park
08:30-09:00	Ang Pulo Nature Walk and Balsa to Discussion Site	Ang Pulo Guides	
0900-1030	**Panel discussion: Eco-Tourism: Economy and Ecology**		
0900-0930	Sustainable Tourism Practices	Ang Pulo Guides	
0930-1015	Fieldwork: Platide Tour	Ang Pulo Guides	
1015-1200	Fieldwork: Be A PaparaSea (Snorkelling)		Gulod
1200-1230	Lunch at Floating House		
1220-1230	Youth and the U.S. Embassy Manila	Tina Malone, Public Affairs Officer	
1230-1330	Travel to Lago de Oro and Preparation for PaparaSea II	TRAVEL (45 PAX)	Lago de Oro
1330-1730	Fieldwork: Be A PaparaSea (DSD)	Studio H2O	
1830-1930	Shower and Dinner		
1930-2030	Discussion of results	Facilitator: SEA Camp Team	
2030-2100	Feedback Session	Facilitator: SEA Camp Team	
APRIL 18 - DAY 4: ImaginOCEAN			
0800-0900	Game: Ecosystem Balance Web	Facilitator: SEA Camp Team	Lago de Oro
	Recall activities of Day 1 and 2	Facilitator: SEA Camp Team	
0900-1100	**Panel Discussion: Careers in Marine Conservation**		
0900-0920	NGO	Chris Ng, WWF	
0920-0940	Scientist/Researcher/Academic (Presentation of video from Dr.	Dr. Laura David, UP MSI	

	David)		
0940-1000	Q&A and AM Snacks		
1000-1020	Government	Rodrigo de Jesus, Bantay Dagat Calatagan	
1020-1040	Business / CSR / Social Enterprise	Angie Tan, Human Nature	
1040-1100	Q&A		
1200-1300	Lunch		
1300-1500	Groupwork and Presentation: MPA Game and Draw Your Dream MPA		
1500-1600	Workshop: Writing Letters to Leaders	Facilitator: SEA Camp Team	
1600-1700	Introduction to ECOmmunication	Chely Esguerra, ChannelGood Communications	
1700-1800	Workshop: ECOmmunication		
1800-1830	Presentation from participants		
1830-1900	Feedback Session		
1900-2000	Dinner		
2000 onwards	Free time for participants to work on project and write letters		
APRIL 19 - DAY 5: SEA-ING BEYOND THE HORIZON			
0630-0730	Breakfast		
800-0830	SEA Camp Quiz		
0830-1230	Presentation of project pitches	Mentors and Panelist	Lago de Oro
1230-1430	Lunch		
	Mentorship Session (Peer-to-Peer and with Mentors)	Mentors and SEA Camp Team	Lago de Oro
1430-1800	Mural Painting Activity	Calatagan LGU and SEA Camp Team	CALMADA Ecolodge
1800-1900	Dinner		Lago de Oro
1900-1930	Feedback session		
1900-2100	Free time for participants to work on project		
APRIL 20 - DAY 6: WATER YOU THINKING ABOUT?			
0830-1230	Presentation of revised project pitches	Mentors and Panelist	
1230-1330	Lunch		
1300-1430	SEA Camp Post-Test (unannounced) and Commitment Building	Facilitator: SEA Camp Team	

1430-1500	Group Sharing		
1500-1630	Awarding of Certificates, Closing Ceremony, and Group Photo		
1630-1700	Travel: Lago de Oro to Gulod Floating House		Floating House
1700-1830	Sunset Sessions and Tour	Facilitator: Jessie de los Reyes	
1900 onwards	Dinner and Socials		
APRIL 21 - DAY 7: PARTICIPANTS DEPART			
0700-0800	Breakfast		Lago de Oro
0800 onwards	Participants Depart		

Appendix II: Letter and Consent Form

13 April 2015

Hi SEA Campers!

As you may already know, I am currently taking my MSc in Conservation Science at Imperial College London. I have just arrived in the Philippines and will be here from April-June (yey!) specifically to facilitate the SEA Camps. We will be conducting several monitoring and evaluation activities for the SEA Camp, such as administering questionnaires and facilitating group discussions, to see if the SEA Camp has been an effective conservation education program or not. This will also be the topic of my MSc thesis, entitled *Good Seatizenship*. One of my research aims is to make recommendations on how to improve the content and structure for future programs of Save Philippine Seas, and potentially even make an impact on conservation education on a national scale! One of our dreams is for marine conservation education to be the norm, and not the exception :)

As participants of the SEA Camp, filling in these questionnaires and participating in the discussions is a requirement to help us evaluate and improve our work, and report our accomplishments to our donors and partners. While your opinions are keenly sought, if you do not feel comfortable answering any specific question, then you can leave that question blank. You can also opt to not be part of the dataset of my thesis, so kindly inform me ahead as well.

The results of this survey will be kept **strictly confidential** and your anonymity is guaranteed. We'll ask you to write your name on the forms, but only as our way of checking who has or has not yet submitted. Your answers will ***not*** **affect your relationship with Save Philippine Seas, the SEA Camp team members, or my grade,** because I will be assessed based on my analysis and research methods, so please do not feel any pressure to give only positive feedback or feel that you have to impress us during these feedback sessions. Constructive feedback is very much appreciated, because we want to **improve our projects and programs**. Thus, we request that you answer the questions truthfully and individually. While answering the forms, please keep in mind that there are no wrong or right answers, only *your* answers.

The results may be presented at the National Symposium on Marine Science in October 2015 in General Santos, and may even be published in an academic journal. Again, your names will not be revealed in any of these platforms.

All of the information you provide will be treated in the strictest confidence. The only person to see your answers will be me, Jean, Kim, and my supervisor from Imperial College, Dr. Andrew Knight.

Thank you in advance for taking part in this important study. If you have any questions about the study or the way in which the information you provide will be used, feel free to contact me with any questions. You can email me at anna@savephilippineseas.org or text me at +63 917 851 0209.

Best fishes,

Anna Oposa
Project Director, SEA Camp

Good Seatizenship – Consent Form
MSc in Conservation Science
Imperial College London

Purpose of Research
The purpose of this research is to evaluate the effect of the SEA Camp on the participants' self-reported knowledge, attitudes, and behaviour.

Specific Procedures to be Used
This study will be conducted through self-administered questionnaires, semi-structured interviews, and focused group discussions.

Duration of Participation
From the start of the regional SEA Camp until July 2015.

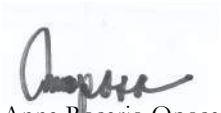
Confidentiality
The data collected from this study will only be seen by the principal investigator (PI), the SEA Camp staff, and the PI's supervisor, Dr. Andrew Knight. The results of this study will be submitted to the U.S. Embassy-Manila as part of the grant requirements, and may be presented in forums and published in an academic journal. Names of the participants will be deleted in reports and the thesis, and results will not, in any way, harm the respondent's relationship with the U.S. Embassy Manila or Save Philippine Seas.

Voluntary Nature of Participation
While you are required to answer the self-administered questionnaires and participate in the group discussions as participants in the SEA Camp, you can opt not to be included in the dataset for the thesis. If there are any questions that you may not want to answer, you may opt not to answer them.

Contact Information
If you have any questions about this research project, contact Ms. Anna Oposa at +63917 851 0209 or at anna.oposa14@imperial.ac.uk.

I HAVE HAD THE OPPORTUNITY TO READ THIS CONSENT FORM, ASK QUESTIONS ABOUT THE RESEARCH, AND AM PREPARED TO PARTICIPATE IN IT.

_____ _____
Respondent's Name and Signature Date Signed



Anna Rosario Oposa 12 April 2015
Researcher's Name and Signature Date signed

Appendix III: SEA Camp Application Form

Empowering young seatizens as leaders in conservation

APPLICATION FORM

Complete Name:

Address:

Nickname: Sex: ☐ F ☐ M Landline:

Birthdate: Email Address: Mobile Number:

Twitter Username: Facebook Name: Blog:

EMERGENCY CONTACT INFORMATION

Name:

Contact Number & Email Address:

Relationship:

EDUCATIONAL ATTAINMENT

School:

Year of Study & Degree *(If Applicable)*:

ORGANIZATIONAL AFFILIATIONS *(Maximum of 3)*

Name of Organization	Role and Period of Membership

How did you find out about this program?	
Do you have any medical illnesses or disabilities? Please put N/A if none. If yes, what are they and what kind of medication or attention do these require?	
Do you have any allergies? Please put N/A if none. If yes, what are they?	
Do you have a special diet? (e.g., vegetarian, vegan, Halal) Please put N/A if none.	
What languages do you speak?	
Are you a SCUBA diver? Please put N/A if no. If yes, please indicate what level of certification.	
The SEA Camp will require you to join one of the three activities: snorkeling, a PADI Discover Scuba Diving course, or a coastal cleanup. All materials, certification, and equipment will be provided. Which one would you like to participate in?	

What is the location of the SEA Camp that you are applying for?

☐ Luzon (Batangas) ☐ Visayas (Siaton) ☐ Mindanao (Tawi-Tawi)

Have you ever participated in a U.S. Government program? ☐ Yes ☐ No

If yes, what program and when?

Please answer the following questions in five sentences or less.

Why do you want to be part of the SEA Camp?

Please describe any work, volunteer, and/or extra-curricular (clubs, sports, hobbies) you have participated in during the last two years.

What is the most important conservation issue in your community that needs to be addressed? What is being done about it? What else can be done about it?

What will you do with what you learned during the SEA Camp? Where would you apply the lessons learned?

Do you have an action plan or solution to help your community's environment? If so, briefly explain.

Name and Signature of Applicant

Date signed

By signing this application, I certify that the statements herein are true, complete and accurate to the best of my knowledge.

SEA CAMP

Empowering young seatizens as leaders in conservation.

Appendix IV: Pre-Test Survey

SEA CAMP
Empowering young seafarers as leaders in conservation

Pre-SEA Camp Questionnaire

This is a short questionnaire that will help us assess your current knowledge and concerns about marine conservation and environmental behavior. The results of this test will not affect your relationship with Save Philippine Seas, so please be as honest as you can :)

ABOUT YOU

Name:
Age:
Gender:
Educational attainment (course, school, current year/year graduated):

Current occupation (if applicable):

Do you identify your lifestyle as urban or rural?

Which of the following categories best describes your family's **average annual** income? Please check one answer.

- ☐ PhP 1,857,000 (PhP 154,750/month)
- ☐ PhP 1,200,00 (PhP 100,000/month)
- ☐ PhP 603,000 (PhP 50,250/month)
- ☐ PhP 191,000 (PhP 15,915/month)
- ☐ PhP 62,000 (PhP x5,166/month)
- ☐ I don't know.

What is the highest educational attainment your mother has completed?

- ☐ Grade school
- ☐ High school
- ☐ College
- ☐ Postgraduate studies (Master's, PhD)
- ☐ I don't know.

What is the highest educational attainment your father has completed?

- ☐ Grade school
- ☐ High school
- ☐ College
- ☐ Postgraduate studies (Master's, PhD)
- ☐ I don't know.

ABOUT YOU AND CONSERVATION

This section is about you and your interest in conservation. Please read the questions carefully.

When did you get interested in **nature**? Please check one answer.

- ☐ Childhood (6-8)
- ☐ Pre-teens (9-12)
- ☐ Early teens (13-16)
- ☐ Late teens (17-19)
- ☐ Early 20s (20-23)

When did you get interested in **conservation**? Please check one answer.

- ☐ Childhood (6-8)
- ☐ Pre-teens (9-12)
- ☐ Early teens (13-16)
- ☐ Late teens (17-19)
- ☐ Early 20s (20-23)

Who/what got you **first interested** in **conservation**? Choose only two answers and rank them 1st and 2nd.

- ☐ Childhood experiences in nature
- ☐ Experiences of environmental destruction (e.g., witnessing deforestation, seeing plastics in a hike)
- ☐ Pro-environmental values held by my family
- ☐ Membership in pro-environmental organizations or youth groups
- ☐ Role models (friends or teachers) who are engaged in conservation
- ☐ Education (lessons in class, field trip)
- ☐ Media (documentary, book, TV show)
- ☐ Hobby (skin diving, mountain climbing)
- ☐ Love for the outdoors
- ☐ Other: _____

Please elaborate on your answers (e.g., if it was media, what TV show?).

_____

_____

What **sustains** your interest in **conservation**? Choose only two answers and rank them 1st and 2nd.

- ☐ Experiences of environmental destruction (e.g., seeing deforestation, illegal fishing, seeing plastics in a hike)
- ☐ Pro-environmental values held by my family
- ☐ Membership in pro-environmental organizations or youth groups
- ☐ Role models (friends or teachers) who are engaged in conservation
- ☐ Education (lessons in class, field trip)
- ☐ Media (social media, documentary, book, TV show)
- ☐ Hobby (skin diving, mountain climbing)
- ☐ Love for the outdoors
- ☐ Others: _____

Please elaborate on your answers (e.g., if it was media, what TV show?).

_____

_____

ENVIRONMENTAL KNOWLEDGE

Please encircle the best answer.

1. A whale shark is a:

   a. whale
   b. fish
   c. nudibranch
   d. I don't know.

2. A coral is a:
   a. rock
   b. animal
   c. plant
   d. I don't know.

3. The number of fatal shark attacks a year is:

   a. More than 100
   b. 51-100
   c. 11-50
   d. 0-10

4. Republic Act 8550 is:

   a. Ecological Solid Waste Management Act
   b. Philippine Fisheries Code
   c. Wildlife Act
   d. I don't know.

5. Which marine animal cannot be found in the Philippines?

   a. Sunfish
   b. Manatee
   c. Megamouth shark
   d. Pygmy seahorse

How do the following items make an impact on the sea and the animals and plants in it?

1. Party balloons:

_____

2. Exfoliating facial wash:

_____

3. Straws:

_____

4. Plastic bags:

_____

5. Sunblock:

_____

6. Shampoo:

_____

Define the following. If you do not know the technical definition, please write the first three words that come to your mind.

Biodiversity:

_____

Conservation:

_____

Preservation:

_____

Restoration:

_____

Sustainable development:

_____

Climate change:

_____

Global warming:

_____

Marine Protected Area:

_____

What are some benefits and challenges of Marine Protected Areas that you can think of?

Benefits	Challenges

What are the three types of coastal marine ecosystems? What are their roles to people and animals? Do you know of any threats they face? Please list them if you do. You can leave this blank if you are unsure.

Name of Coastal Marine Ecosystem	Benefits to People	Benefits to Animals	Benefits to Plants	Threats
1.				
2.				
3.				

RECENT ENVIRONMENTAL BEHAVIOR

Please rank the occurrence of the following behaviors in **the last two months**:

Never	I have not done this in this in the last two months.
Rarely	Out of 10 chances, I do it 1-3 times.
Sometimes	Out of 10 chances, I do it 4-6 times.
Often	Out of 10 chances, I do it more than 6 times.
Always	When I have the chance to, I always do.

	Never	Rarely	Sometimes	Often	Always	Unsure
I segregate wastes.						
I throw wastes in the trash bin						
I belong to an environmental organization.						
I have volunteered for an environmental organization.						
I have held a leadership position in an environmental organization in the last two months.						
I bring a reusable bag when I shop.						
I bring a reusable water bottle and refill it instead of buying plastic bottles.						
I read news about the environment and conservation.						
I contact people in power to report environmental violations that I see.						
I find out how my seafood was sourced – where it was from and how it was caught.						
I check the ingredients of my personal care products (e.g., shampoo, soap, facial wash).						
I have signed an online petition about an environmental issue.						

Rate the degree to which you believe each of the following behaviors is worthwhile in the effort to address issues and challenges in marine conservation.

Waste segregation

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Throwing wastes in the trash bin

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Belonging to an environmental organization

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Volunteering for an environmental organization

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Holding a leadership position in an environmental organization.

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Bringing a reusable bag when I shop

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Bringing a reusable water bottle and refill it instead of buying plastic bottles

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Reading news about the environment and conservation

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Contacting people in power to report environmental violations that I see

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Finding out how my seafood was sourced – where it was from and how it was caught

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Checking the ingredients of my personal care products (e.g., shampoo, soap, facial wash).

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Signing an online petition about an environmental issue

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Please encircle the number that indicates the strength of your agreement with each statement. "Environmental behavior" here is defined as those listed in last two pages, or those that are similar to those practices.

I engage in environmental behavior because people important to me do it.

Disagree 1 2 3 4 5 6 7 Agree

My family (parents and siblings) engages in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

My parents think I should engage in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

If I wanted to pursue a career in environmental conservation, my parents would support it.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, what my parents think is crucial in my decisions.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, I will do what my parents think I should do.

Disagree 1 2 3 4 5 6 7 Agree

My closest friends engage in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

My closest friends think I should engage in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

If I wanted to pursue a career in environmental conservation, my closest friends would support it.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, what my closest friends think is crucial in my decisions.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, I will do what my closest friends think I should do.

Disagree 1 2 3 4 5 6 7 Agree

I don't engage in certain environmental behavior because there's no infrastructure / facilities available for it.

Disagree 1 2 3 4 5 6 7 Agree

The government provides opportunities for youth to participate in marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

The government provides opportunities for youth to lead marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My school provides/provided opportunities for youth to participate in marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My school provides/provided opportunities for youth to lead marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My local community (church, residential area, or local youth organization) provides opportunities for youth to participate in marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My local community (church, residential area, or local youth organization) provides opportunities for youth to lead marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

ENTREPRENEURIAL ORIENTATION AND CIVIC ATTITUDES

This assesses your entrepreneurial and civic attitudes. Please check what indicates the strength of your agreement with each statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I want to make my mark in the field of environmental conservation.						
I am driven by the desire to succeed in conservation.						
My professional success is an important legacy to my family.						
I believe that other conservationists can provide me with useful advice regarding my project proposal for the SEA Camp.						
I would benefit from doing a conservation course at a university.						
While I know a lot about how to be a successful conservationist, I don't know everything.						
The course of my life is determined by my own actions.						
I do not require the assistance of anyone else to achieve the goals I set for myself.						
The actions of others do not over-ride my control of the direction of my life.						
I believe that I have the ability to identify emerging new business opportunities.						
I believe that I have the ability to adjust my project proposal to capitalize on emerging opportunities						
I actively seek opportunities for improving my environmental behavior.						
I want to be known as an innovator amongst my colleagues.						
I believe I have what it takes to be an innovative conservationist.						
I have a feeling of success or pride when I do something innovative.						
Conservationists are likely to have taken some chances along the way.						
I am a risk-taker compared to most of my peers.						
I am prepared to take significant risks if the returns are large enough.						
I put measures in place to cover myself against the risks I take.						
It is important to have a strategy in place for dealing with risk.						
I have taken practical steps to diversify my approaches to making a social change.						
I investigate new ways of doing things.						

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	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I have taken chances in an attempt to achieve my dreams.						
I plan to do environmental volunteer work within the next two months.						
I plan to become an active member of my community (school, church, residential area) within the next two months.						
I try to place myself in the place of others in trying to assess their current situation.						
I can work cooperatively with a group of people.						
I plan to be involved in the policy-making process of my community/country.						
I am a registered voter.						
I plan to vote in the 2016 elections.						
I understand the environmental issues facing this nation.						
I am a good leader.						
I would rather have somebody else take the lead in formulating a solution.						
I am aware of political current events in the Philippines.						
I understand the environmental issues facing my municipality/city's community.						
I am aware of the environmental activities happening in my local community.						
I have the ability to lead a group of people when implementing projects.						
I am a better follower than a leader.						
In order for environmental problems to be solved, we need to change public policy.						
We need to change people's attitudes in order to solve social problems.						
We need to look no further than the individual in assessing his/her problems.						
It is important that equal opportunity be available to all people.						

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DAILY REFLECTION SPACE

Name: _____

Based on the program, what were you looking forward to the most today? Why?

What was your favorite activity? Why?

What was your least favorite activity? Why?

What new lessons or major realizations did you have today?

What were some of the quotable quotes from today?

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Do you think these lessons/experience can be applied to your daily life or at work/in school? How?

Complete this sentence: When I go back to school / work, I want to take action on…

Are there any changes you think you would do based on this:
___ No, not applicable.

___ Yes. Short-term:

___ Yes. Long-term:

Use this space for doodles and other scribbles.

Appendix VI: Post-Test Survey

Post-SEA Camp Evaluation

Name:

ABOUT THE SEA CAMP

This section is about the SEA Camp. We are interested in your opinions and feelings, so please be as honest as you can. We appreciate all kinds of feedback, because the answers to your questions will help us improve our work in the future. Kindly place a check under the category that best describes your opinion to the statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
The objectives of the SEA Camp were made clear in the promotional materials.						
The SEA Camp Team made the itinerary clear during email exchanges.						
The SEA Camp Team made the pre-SEA Camp assignments clear during the email exchanges.						
The SEA Camp Team adequately responded to questions I had before the program.						
I was adequately briefed about what to expect and what to bring.						
The coordination of our transportation was smooth.						
The resort/hotel we stayed in was conducive for the SEA Camp.						
My bedroom and bathroom were comfortable.						
There was enough space for everyone to work in.						
I felt physically safe and secure in the accommodations provided.						
The food provided was in good quality.						
The food provided was in good quantity.						
There were enough options in every meal.						
The resource speakers provided us with up-to-date information.						
Topics tackled were essential and can really be used as a marine conservationist.						
All the materials needed for training were provided.						
The time allotted was sufficient to tackle all topics.						
Our resource speakers came prepared and handled the topics clearly.						
Our resource speakers showed enthusiasm and interest in their subjects.						
The resource speakers were willing to answer questions.						
The modules were pitched at the right level.						
The mentors provided constructive criticism when I presented my project proposal.						
The mentors seemed genuinely interested in my project proposal.						

The SEA Camp Team came prepared.						
The SEA Camp Team showed enthusiasm and interest in their work.						
The SEA Camp Team was willing to answer questions during the Camp.						
I felt that I had the freedom to share my opinion and experiences.						
I was able to learn new things from the whole program.						
I was able to gain knew skills from the program.						
The SEA Camp boosted my confidence to pursue conservation activities in the future.						
I was given enough workload during the SEA Camp.						
It was easy for me to make new friends during the SEA Camp.						
I made new friends that I want to keep in touch with for the years to come.						
I made new friends that I can imagine working with in the future.						
If I need help for something related to this field in the future, I know I can contact one of the SEA Camp Team members.						
If I need help for something related to this field in the future, I know I can contact one of my fellow SEA Campers.						
Being part of the SEA Camp makes me feel like I'm part of a community.						
I was given enough time to rest.						
I agree that the program should only run for a week.						
If there would be a second SEA Camp, I would recommend the program to others.						

What do you think should be included in the program?

What do you think should be removed from the program?

ENVIRONMENTAL KNOWLEDGE

Please encircle the best answer.

1. A whale shark is a:

   a. whale
   b. fish
   c. nudibranch
   d. I don't know.

2. A coral is a:
   a. rock
   b. animal
   c. plant
   d. I don't know.

3. The number of fatal shark attacks a year is:

   a. More than 100
   b. 51-100
   c. 11-50
   d. 0-10

4. Republic Act 8550 is:

   a. Ecological Solid Waste Management Act
   b. Philippine Fisheries Code
   c. Wildlife Act
   d. I don't know.

5. Which marine animal cannot be found in the Philippines?

   a. Sunfish
   b. Manatee
   c. Megamouth shark
   d. Pygmy seahorse

How do the following items make an impact on the sea and the animals and plants in it?

1. Party balloons:

_____

2. Exfoliating facial wash:

_____

3. Straws:

_____

4. Plastic bags:

_____

5. Sunblock:

_____

6. Shampoo:

_____

Define the following. If you do not know the technical definition, please write the first three words that come to your mind.

Biodiversity:

_____

Conservation:

_____

Preservation:

_____

Restoration:

_____

Sustainable development:

_____

Climate change:

_____

Global warming:

_____

Marine Protected Area:

_____

What are some benefits and challenges of Marine Protected Areas that you can think of?

Benefits	Challenges

What are the three types of coastal marine ecosystems? What are their roles to people and animals? Do you know of any threats they face? Please list them if you do. You can leave this blank if you are unsure.

Name of Coastal Marine Ecosystem	Benefits to People	Benefits to Animals	Benefits to Plants	Threats
1.				
2.				
3.				

Rate the degree to which you believe each of the following behaviors is worthwhile in the effort to address issues and challenges in marine conservation.

Waste segregation

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Throwing wastes in the trash bin

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Belonging to an environmental organization

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Volunteering for an environmental organization

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Holding a leadership position in an environmental organization.

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Bringing a reusable bag when I shop

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Bringing a reusable water bottle and refill it instead of buying plastic bottles

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Reading news about the environment and conservation

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Contacting people in power to report environmental violations that I see

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Finding out how my seafood was sourced – where it was from and how it was caught

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Checking the ingredients of my personal care products (e.g., shampoo, soap, facial wash).

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Signing an online petition about an environmental issue

Worthless 1 2 3 4 5 6 7 Extremely worthwhile

Please encircle the number that indicates the strength of your agreement with each statement. "Environmental behavior" here is defined as those listed in last page, or those that are similar to those practices.

I engage in environmental behavior because people important to me do it.

Disagree 1 2 3 4 5 6 7 Agree

My family (parents and siblings) engages in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

My parents think I should engage in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

If I wanted to pursue a career in environmental conservation, my parents would support it.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, what my parents think is crucial in my decisions.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, I will do what my parents think I should do.

Disagree 1 2 3 4 5 6 7 Agree

My closest friends engage in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

My closest friends think I should engage in environmental behavior.

Disagree 1 2 3 4 5 6 7 Agree

If I wanted to pursue a career in environmental conservation, my closest friends would support it.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, what my closest friends think is crucial in my decisions.

Disagree 1 2 3 4 5 6 7 Agree

When it comes to pursuing environment-related endeavors, I will do what my closest friends think I should do.

Disagree 1 2 3 4 5 6 7 Agree

The government provides opportunities for youth to participate in marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

The government provides opportunities for youth to lead marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My school provides/provided opportunities for youth to participate in marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My school provides/provided opportunities for youth to lead marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My workplace provides opportunities for me to participate in marine conservation activities. Please leave blank if not working.

Disagree 1 2 3 4 5 6 7 Agree

My workplace provides opportunities for me to lead in marine conservation activities. Please leave blank if not working.

Disagree 1 2 3 4 5 6 7 Agree

My local community (church, residential area, or local youth organization) provides opportunities for youth to participate in marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

My local community (church, residential area, or local youth organization) provides opportunities for youth to lead marine conservation activities.

Disagree 1 2 3 4 5 6 7 Agree

ENTREPRENEURIAL AND CIVIC ATTITUDES

This assesses your entrepreneurial and civic attitudes. Please check what indicates the strength of your agreement with each statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I want to make my mark in the field of environmental conservation.						
I am driven by the desire to succeed in conservation.						
My professional success is an important legacy to my family.						
I believe that other conservationists can provide me with useful advice regarding my project proposal for the SEA Camp.						
I would benefit from doing a conservation course at a university.						
While I know a lot about how to be a successful conservationist, I don't know everything.						
The course of my life is determined by my own actions.						
I do not require the assistance of anyone else to achieve the goals I set for myself.						
The actions of others do not over-ride my control of the direction of my life.						
I believe that I have the ability to identify emerging new business opportunities.						
I believe that I have the ability to adjust my project proposal to capitalize on emerging opportunities						
I actively seek opportunities for improving my environmental behavior.						
I want to be known as an innovator amongst my colleagues.						
I believe I have what it takes to be an innovative conservationist.						
I have a feeling of success or pride when I do something innovative.						
Conservationists are likely to have taken some chances along the way.						
I am a risk-taker compared to most of my peers.						
I am prepared to take significant risks if the returns are large enough.						
I put measures in place to cover myself against the risks I take.						
It is important to have a strategy in place for dealing with risk.						
I have taken practical steps to diversify my approaches to making a social change.						
I investigate new ways of doing things.						

SEA CAMP

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I have taken chances in an attempt to achieve my dreams.						
I plan to do environmental volunteer work within the next two months.						
I plan to become an active member of my community (school, church, residential area) within the next two months.						
I try to place myself in the place of others in trying to assess their current situation.						
I can work cooperatively with a group of people.						
I plan to be involved in the policy-making process of my community/country.						
I am a registered voter.						
I plan to vote in the 2016 elections.						
I understand the environmental issues facing this nation.						
I am a good leader.						
I would rather have somebody else take the lead in formulating a solution.						
I am aware of political current events in the Philippines.						
I understand the environmental issues facing my municipality/city's community.						
I am aware of the environmental activities happening in my local community.						
I have the ability to lead a group of people when implementing projects.						
I am a better follower than a leader.						
In order for environmental problems to be solved, we need to change public policy.						
We need to change people's attitudes in order to solve social problems.						
We need to look no further than the individual in assessing his/her problems.						
It is important that equal opportunity be available to all people.						

Appendix VII: Delayed Post-Test

Name:

Regional SEA Camp Attended:
Luzon
Visayas
Mindanao

RECENT ENVIRONMENTAL BEHAVIOR

Please rank the occurrence of the following behaviors **since the SEA Camp**:

Never	I have not done this in this in the last two months.
Rarely	Out of 10 chances, I do it 1-3 times.
Sometimes	Out of 10 chances, I do it 4-6 times.
Often	Out of 10 chances, I do it more than 6 times.
Always	When I have the chance to, I always do.

	Never	Rarely	Sometimes	Often	Always	Unsure
I segregate wastes.						
I throw wastes in the trash bin						
I belong to an environmental organization.						
I have volunteered for an environmental organization.						
I have held a leadership position in an environmental organization in the last two months.						
I bring a reusable bag when I shop.						
I bring a reusable water bottle and refill it instead of buying plastic bottles.						
I read news about the environment and conservation.						
I contact people in power to report environmental violations that I see.						
I find out how my seafood was sourced – where it was from and how it was caught.						
I check the ingredients of my personal care products (e.g., shampoo, soap, facial wash).						
I have signed an online petition about an environmental issue.						

Have you taken any action or have committed to any kind of behavioural change as a result of the SEA Camp that was not mentioned in the previous section? If yes, what were they? (e.g., applied for a job in conservation, wrote another letter to a leader, conducted an activity based on the SEA Camp)

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ENTREPRENEURIAL ORIENTATION AND CIVIC ATTITUDES

This assesses your entrepreneurial and civic attitudes. Please check what indicates the strength of your agreement with each statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I want to make my mark in the field of environmental conservation.						
I am driven by the desire to succeed in conservation.						
My professional success is an important legacy to my family.						
I believe that other conservationists can provide me with useful advice regarding my project proposal for the SEA Camp.						
I would benefit from doing a conservation course at a university.						
While I know a lot about how to be a successful conservationist, I don't know everything.						
The course of my life is determined by my own actions.						
I do not require the assistance of anyone else to achieve the goals I set for myself.						
The actions of others do not over-ride my control of the direction of my life.						
I believe that I have the ability to identify emerging new business opportunities.						
I believe that I have the ability to adjust my project proposal to capitalize on emerging opportunities						
I actively seek opportunities for improving my environmental behavior.						
I want to be known as an innovator amongst my colleagues.						
I believe I have what it takes to be an innovative conservationist.						
I have a feeling of success or pride when I do something innovative.						
Conservationists are likely to have taken some chances along the way.						
I am a risk-taker compared to most of my peers.						
I am prepared to take significant risks if the returns are large enough.						
I put measures in place to cover myself against the risks I take.						
It is important to have a strategy in place for dealing with risk.						
I have taken practical steps to diversify my approaches to making a social change.						

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	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I investigate new ways of doing things.						
I have taken chances in an attempt to achieve my dreams.						
I plan to do environmental volunteer work within the next two months.						
I plan to become an active member of my community (school, church, residential area) within the next two months.						
I try to place myself in the place of others in trying to assess their current situation.						
I can work cooperatively with a group of people.						
I plan to be involved in the policy-making process of my community/country.						
I am a registered voter.						
I plan to vote in the 2016 elections.						
I understand the environmental issues facing this nation.						
I am a good leader.						
I would rather have somebody else take the lead in formulating a solution.						
I am aware of political current events in the Philippines.						
I understand the environmental issues facing my municipality/city's community.						
I am aware of the environmental activities happening in my local community.						
I have the ability to lead a group of people when implementing projects.						
I am a better follower than a leader.						
In order for environmental problems to be solved, we need to change public policy.						
We need to change people's attitudes in order to solve social problems.						
We need to look no further than the individual in assessing his/her problems.						
It is important that equal opportunity be available to all people.						

Appendix VIII.

Age first interested in nature		
Age interested in nature	Number	%
Childhood (6-8)	27	31
Pre-teens (9-12)	14	16
Early teens (13-16)	28	32
Late teens (17-19)	16	18
Early 20s (20-23)	3	3

Appendix IX.

Age first interested in conservation		
Age interested in conservation	Number	Percent
Childhood (6-8)	9	10
Pre-teens (9-12)	10	11
Early teens (13-16)	22	25%
Late teens (17-19)	33	38%
Early 20s (20-23)	14	16%

Appendix X.

What inspired participants' interest in conservation				
	Number as 1st choice	%	Number as 2nd choice	%
Childhood experiences in nature	15	18	4	5
Membership in pro-environmental organisations or youth groups	13	16	17	21
Education (lessons in class, field trip)	14	17	14	17
Media (documentary, book, TV show)	5	6	12	15
Experiences of environmental destruction (e.g., witnessing deforestation, seeing plastics in a hike)	9	11	9	11
Role models (friends or teachers) who are engaged in conservation	6	7	7	9
Hobby (skin diving, mountain climbing)	7	8	4	5
Love for the outdoors	7	8	8	10
Pro-environmental values held by my family	5	6	3	4
Other: Work, Nature Camp, School Activity	2	2	4	5

Appendix XI.

What sustains participants' interest in conservation				
What/who **sustains** your interest in **conservation?**	**Number as 1st choice**	**%**	**Number as 2nd choice**	**%**
Experiences of environmental destruction (e.g., seeing deforestation, illegal fishing, seeing plastics in a hike)	24	30	18	23
Love for the outdoors	11	14	8	10
Membership in pro-environmental organisations or youth groups	10	12	15	19
Education (lessons in class, field trip)	10	12	9	11
Hobby (skin diving, mountain climbing)	7	9	12	15
Role models (friends or teachers) who are engaged in conservation	6	7	9	11
Media (social media, documentary, book, TV show)	6	7	6	8
Pro-environmental values held by my family	3	4	2	3
Others: Work	4	5	1	1