Marine Educators:
Linking personal commitment, education and public policy

by
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Abstract

Marine community education is an important area that is rapidly evolving and developing. In Australia it has created a groundswell that has resulted in a re-defining of our coastlines and of ourselves as both “environmental consumers” and Australians. The province of British Columbia in Canada has experienced a similar groundswell, with the development of a series of educational programs and policies that relate specifically to the marine and coastal environments.

Marine educators, in both countries, have emerged as a significant force in defining and supporting this increasing movement towards notions of global stewardship. By working closely with local community groups, marine educators are well situated to both educate and advocate; influencing and interpreting policy development framed around stewardship. They are able to present and interpret the governments’ management strategies to the community and to educate and encourage public perceptions to influence and promote change. Marine educators are a pivotal link between community groups and government agencies.

This thesis reports on a study of the experiences and beliefs of a sample of marine educators from both Canada and Australia. It investigates the educators’ narratives in order to explore their role in regards to their interactions and relationships between and with policy, community and education within the marine education context.

Using narrative methodology informed by a framework of aesthetic understanding, this research examines the roles of marine educators in influencing practice and policy in public belief and actions and in education regarding coastal and marine environments. Through a series of semi-structured interviews, nine experts from various sectors within the coastal and/or marine education field(s) in Australia or Canada explore how they perceive their roles, and what influences their design and delivery of
marine/coastal education programs. Analysis of the data gathered examines the links between policy, education programs and the program recipients, the community.

The main findings coming out of the study include:

- The marine educators' have a strong aesthetic, transformative connection to the marine environment that drives their pedagogical understandings and practice.
- That education programs reflect the fundamental beliefs of the educators themselves, even within the constraints of working within public policy.
- The marine educators directly and indirectly influence both policy and the community by shaping community knowledge, attitudes and behaviours through education programmes.
- The marine educators' narratives expose a fundamental tension between personal beliefs and public policy.

The research has important implications for the place of education within public policy framing, and the need to find ways to acknowledge and support the work of such activists in linking personal environmental commitments to public policy agendas.
Chapter 1

Setting Sail: The research question

Nothing stays the same, that’s progress. In time even landscapes become memories. Somehow they remain precious as only memories can… But there is a pressure to drop much that we recognise as good and rightly precious. Nowhere is this more prevalent than in the refusal to resist or even mourn the destruction of place – landforms, buildings, ecosystems precious to individuals and whole communities. Well, I just can’t bring myself to accept the convention. To me it smells of the wartime notion of “acceptable losses”, of casualties we can live with. The only way such an idea can be accommodated is through steady desensitization to the incremental losses in our lives. It requires a deliberate averting of the eyes under the spell of the grand myth of progress. When finally you do look, the shock can be profound, the losses beyond bearing.

(Winton, 1997)

1.1 Introduction to the study

Marine educators are key people in mediating community action and policies to protect coastal and marine environments. In doing so, they play a vital role in defining and supporting the expanding shift towards ideals of global stewardship and community participation. Consequently, examining these educators’ actions and listening to their voices offers potentially powerful insight into processes of influence and activism in shaping and acting on marine environment policy.

Why there is a problem

Coastal marine environments vary enormously around the world. They range from shallow, pristine white sandy beaches to rocky, deep and rough waters that extend to open ocean; from pebble strewn or mica-covered shores that sparkle in the sunlight to sheer ragged cliff faces impossible to navigate. It is no wonder humankind has an inherent fascination for and attraction to coastal and marine environments.
These coastal marine environments, rich in biodiversity, have traditionally provided a primary source of food, education, recreation, entertainment, spirituality, transportation, commercial enterprise and accommodation. Despite the value of these resources, little is known about the coastal marine environment internationally (Government of British Columbia, 2009).

The absence of scientific knowledge and understanding, and the appropriate corresponding legislation and education, has led to decades, if not centuries, of arbitrary and excessive use of coastal marine environments. This has caused these ecosystems to become progressively more sensitive and vulnerable (Gokhool, 2008) to external pressures. We are only now beginning to witness the resultant cost of overuse in these areas over time. Unique multi-coloured coral reefs are now being bleached with sea temperature rises as a result of climate change. Many species of fish are becoming endangered as commercial fishing industries (and untrained private individuals) take breeding stock out of the ecosystem and the gene pool. Coastal areas are being over-developed as people in increasing numbers move to these natural environments seeking a lifestyle change, only to create mini-cities that require substantial infrastructure to support.

1.1.1 Devastation of coastal and marine zones

Nearly half of the largest cities in the world are within 50 kilometres of a coastline (United Nations Environment Programme [UNEP], 2010). The reclamation of coastal wetlands (particularly mangrove areas) for residential and commercial development has become more prevalent recently as localized coastal areas attempt to accommodate the surge in population resulting from more people seeking a 'sea change' lifestyle. The significance of the loss of these areas is not fully understood as there is limited scientific knowledge and understanding of “the links between catchments, estuaries and the broader coastline” (Victorian Coastal Council [VCC], 2006, p. 4).

Studies have shown that mangrove forests are valuable ecosystems that provide essential spawning grounds and nurseries for aquatic and marine species, and that they function as stabilizers for coastal areas (Alongi, 2008; UNEP, 2010). Intact coral reefs and mangrove forests attenuate wave energy and act as a natural defence protecting coasts from storms, and to a degree, flooding and salinization upstream and underground (Pritchard, 2009; UNEP, 2010). The loss of these environments would have an enormous impact on the biodiversity of the local area as well as the geology of the coastline itself.
Indiscriminate exploitation has had a negative impact on marine coastal regions around the world. This has led many governments to express their concerns about the viability of continuing to use these environments in such an unsustainable manner (Arthurton and Koranteng, 2006; Gokhool, 2008). The key factors, prevalent in a number of different countries, that impact on these sensitive and vulnerable natural zones include:

- issues and concerns associated with climate change;
- ecological consequences of coastal development;
- over-fishing of key marine species resulting in fishing ‘down the food chain’;
- effects of oil spills and other marine accidents;
- unsustainable ecological tourism;
- threats to coastal wetlands. (Gokhool, 2008; UNEP, 2010; VCC, 2006)

Concerned governments and organizations are now calling for the development of more sustainable lifestyles and management mechanisms in an attempt to counteract these perceived threats. In response, many of them have developed or supported programs aimed at promoting better use of marine and coastal resources, not only within their own countries, but also internationally. In Australia, for example, a National Sea Change Taskforce was established in 2004 “as a national body to represent the interests of coastal councils and communities experiencing the effects of rapid population and tourism growth” (National Sea Change Taskforce, 2011-2012, p.7).

1.1.2 Expectation of local action

In many countries it has traditionally been specific departments in national and/or state or provincial/territorial governments that have been responsible for the protection and maintenance of coastal areas. The overall objective for these agencies was to ensure a balance between using the coast where needed, while striving to protect its natural values and unique resources. Over time, however, it has been recognized that governments and their agencies could not continue managing these environments alone, particularly in locations that have a large oceanic, marine and/or coastal area (Coast Action Vision, c1995, p.1). For example, the Victorian State Government document, *The Coast Action Vision*, identified that:
increasing use as a result of an ever growing population, the availability of greater leisure time, easier access to beaches via motorised transport and improved roads, coupled with competing demands, limited Government funding and serious environmental problems, require management to be addressed by the whole community. … only by intimately involving the people who use the coast, who live by it and who enjoy it, will we generate the interest and resources to properly manage it (Coast Action Vision, c1995, p. 1).

In response, the Government resolved to involve all stakeholders in the management and protection of the coast. As a result there has been a move to share the responsibility of care by encouraging both a “user-pays” scheme and a strategy of local stewardship within protected areas. For example, in Australia user-pays schemes have been adopted in some form by almost every conservation agency (Hughes, Carlsen, Crilley, King, Lee & Kennedy, 2008). These revenue raising schemes ensure that consumers of a natural resource pay for the goods they consume. Thus, visiting protected areas can incur a cost that subsidises the conservation of biodiversity and ecological processes within that area (Australian and New Zealand Environment and Conservation Council [ANZECC], 2000).

Environmental stewardship programs encourage stakeholder groups to be predominantly responsible for caring for their local coastal and marine environments. Government funded schemes have been established to assist these groups to carry out government-approved educative or management programs. These schemes also fund marine education programs that operate through Government departments, or privately-owned, government subsidized organizations. For example, the Victorian State government introduced a program called Coast Action, a program designed to encourage community involvement in coastal issues through action and education.

1.1.3 Environmental education context
The critical nature of environmental and sustainability issues has led to a substantial increase in the array of management tools that government agencies around the world seek to employ. Over the years, education has often been identified as an effective and reliable means to both heighten public awareness of environmental crises and to facilitate and encourage attitudinal and behavioural change (Ballantyne and Packer, 2011; Gough, 1997; Harrison and Clark, 2003; Hungerford and Peyton, 1976; Knapp, 2000; Spence and Pidgeon, 2010). The role of environmental education and environmental educators has increased accordingly in response to these government concerns, as have the number and range of stewardship and educational programs.
Environmental education, in its broadest context, embeds a wide range of formal, informal and non-formal modes of operation and delivery. It also includes a vast array of specialized or niche fields. Coastal marine education is one such subset of environmental education. The basic premises that underpin and frame environmental education hold true for coastal marine education and those that work within this arena.

For many years those working within the environmental education movement have been marginalized. Arguably, this is particularly true for those in the field of coastal marine education. However, over the last couple of decades, these marine educators have been frequently called upon to encourage community action primarily through environmental stewardship and education programs.

These stewardship programs have had a marked effect over time, as evidenced by the extent and growing number of stewardship groups and corresponding strategies and programs that have been developed and established around the world. To varying degrees these stakeholders have now taken on responsibility for protecting these natural local environments. Accordingly, these groups now can identify issues of concern within the environment of which they are custodians, and provide this information to the government resource managers. Some government agencies rely on this data to manage or monitor the resource. Hence, community stewardship programs such as Stream Watch, Reef Watch, Coast Action/Coastcare, Ice Watch or Frog Watch, have become invaluable elements of the management toolkit for environmental resource managers.

Marine educators have been significant actors in the process of including the public in stewardship activities, and government policy development. As a result, marine educators have emerged as a link between the community groups and government agencies. By providing information, support, educational experiences and expertise, Marine educators have driven the process of stewardship from both the government and the community perspective. This includes all government sponsored stewardship programs such as marine education programs, of which the public are the intended recipients. Marine educators are readily identifiable and quite influential drivers of this process of
community involvement in environmental matters, and in government policy development regarding these environments.

1.1.4 Public Involvement and Action
The public have the ability to influence policy makers and policy development through the data they collect for the resource managers, through lobbying, working closely with the relevant department or institution through local community groups, and by running education programs of their own. Marine educators play a significant part in empowering community groups to act for the marine environment through stewardship programs, other government generated initiatives, or their own actions.

Government generated programs (like Coast Action/Coastcare) have been established to encourage groups and individuals along the coast to work side-by-side with government, land managers and land holders. These marine programs are designed and implemented by marine educators, to provide assistance and support to people working on the coasts to help them protect and conserve these environments. At the same time, they educate and empower community groups to participate in the decision making and on-ground work that is deemed necessary for managing and protecting natural areas. It is held in some government circles that this community involvement is not only necessary, it is essential and that, this

co-operative action will ensure that the coast's natural resources are protected and managed in sympathy with natural values, while still providing opportunities for appropriate human use (Coast Action Vision, c1995, p. 1).

Over the years there has been increasing recognition of the need to involve the public and specifically local communities, in the care and management of the coastal and marine environment. There are now many such programs existing internationally, some obviously more successful than others. Many of the programs that were running in 1998 when I first became interested in this issue are still operating in 2012 and have increased in number and size – testament to the success of these initiatives and of their designers and implementers.

On Canada’s east coast (Atlantic Region), for example, a community-based ecosystem initiative called ‘The Atlantic Coastal Action Program’ (ACAP) was initiated in 1991 by Environment Canada. ACAP includes fourteen community groups comprised of stakeholders from a multitude of sectors
(including, government) that take a lead role for the planning and management of their watersheds (McNeil, et al, 2006).

In Oregon, USA in 1998 there were "over 60 citizen based watershed councils working with local soil and water conservation districts, landowners and state and local agencies to restore watershed ecosystems as part of the state's Coastal Salmon Restoration Plan" (CoastNet, n.d.). By 2012 the number of citizen based watershed councils was approximately 90 (Watershed Management Council, n.d.). This is a clear indication of the successful nature of this undertaking.

It is programs of this ilk that encourage a worldwide movement to care for our coasts and marine environments. However, it is the people who design and implement these programs that interpret and execute government directives, and in doing so, influence the recipients of these programs.

There are many marine and coastal education programs offered around the world with varying characteristics and effectiveness, but all of which are designed and implemented by marine educators. The effectiveness of these educational programs is dependent on a number of factors, including the socio-economic, legal, political or cultural background and context against which the program is operating. Alternatively, their effectiveness could come from the experiences and understandings the educators bring to the program design – an issue at the heart of this research. By talking with some of these program designers, developers and educators, we can determine what has caused them to develop a passion for these fragile environments and their conservation and preservation. We can also identify the ways in which their particular commitments (that is, their passions) and perceptions relate to the way they design their programs, and what informs their commitments.

This research argues that marine educators are in a position to both influence and interpret policies – and, therefore, act as both driver and catalyst for change. As such, their stories need to be told and their voices heard.

1.2 The research problem

This study focuses on marine educators as drivers of this process of change. The key individuals that are part of this study have been very influential in framing the focus of marine education that
underpins community groups and, in turn, influences policy. It is generally the marine educators that define marine education and identify and develop strategies to educate the public about pertinent issues. As a result, I argue that marine educators are in a strong position to influence public attitudes, policy development and practice about coastal marine environments.

Marine educators are important informants in understanding the needs and potential of community education in coastal marine environments and in educating the local populace. As such, we need to understand where these people are coming from: What are their backgrounds and what informs their commitments, their perspectives and their roles in both framing education and influencing policy? What are their relationships with policy, community and education? What roles do they play in the change process? What drives them? And what can they tell us about marine education as expert voices?

The marine educators that are the key subjects of this study, and others like them, have spent their lives working towards improving the coastal marine environments through education, advocacy and activism. Because of the roles they play, and the critical and complex relationships they have with government, policy and community, I believe they are far more empowered than either they or others recognize or acknowledge. Consequently, their voices need to be heard and their stories told. My aim in this thesis is to give them that voice and, in doing so, describe the roles they play in policy development and in empowering and involving the public in marine environmental management and decision-making. Accordingly, some of the strongest, or more persistent, voices in coastal marine education in British Columbia, Canada and in Victoria, Australia have been interviewed, and their stories, conversations and experiences are discussed in this study.

1.3 Situating the Researcher

Many experienced qualitative researchers (Gough, 1994; Kuper, Reeves and Levinson, 2008; Ramanathan, 2005; Richardson, 2001; Snape and Spencer, 2003) speak about the importance of the author locating himself or herself within the research. The rationale is that this then gives the reader an understanding of where the author is coming from and what informs their perceptions of the data produced. This positioning has also been described as “a kind of confessional attitudinizing” (Spivak, 1989, p.208). Either way, it provides context and perspective to the analysis of the data and, in turn, the story being told.
It is for this reason I have chosen to begin my narrative with a personal reflection. So that the reader may see through my eyes what I bring to the data produced, and how I have connected to the interviewees’ stories as they were told to me.

This personal reflection is a story within itself, mainly because it is my story. Growing up in a creative family that appreciated the art of telling – and listening to - a good story lay the foundations for my understanding of the world. It is my belief that everyone has a story to tell, that each story (although they may share some similarities) is different and unique, and that it is these many narratives that frame the world in which we live and our understanding of it.

To begin, my parents’ firm understanding that it was important to discover our own country before the rest of the world meant school holidays were often spent exploring various parts of Australia. Invariably, (as was traditional in that particular era) these journeys would be made by car, which allowed us to frequently stop to investigate areas that caught our interest along the way. Although a destination was aimed for, it was not essential that we made it to this point in the time we had. It was really about the journey and our explorations along the way. As a result, I gained a good understanding of both the natural and the constructed aspects of the country in which I lived.

These childhood travels spent exploring parts of Australia many of my childhood friends had never even heard of, led to a fascination with the Australian countryside and a sense of comfort and belonging in the natural environment that is clearly shared by my siblings. Many experiences added to this world view, including the family excursions to the local billabong to catch yabbies for Christmas lunch (where falling into the water was almost mandatory – much to my Mother’s dismay), or when exploring the coastal sand-dunes and rocky outcrops in search of the mythical “Wonthaggi Monster” (while my father encouraged us on with claims that if we listened quietly we could hear its mournful cry. The fact that we all knew that the wind through the sand dunes and the surf crashing along the shore produced the same sound did nothing to dispel the atmosphere of adventure the story created).

My parents’ strong sense of adventure and curiosity was extremely contagious, as was my father’s deep love and understanding of the ocean environment. His ability to use narrative to share this passion with his children provided us with an opportunity to view the world beneath the waves.
through his eyes; inspiring a sense of curiosity and an understanding of the oceanic world that was indicative of a strong aesthetic connection to the marine environment.

Perhaps it was these experiences that inspired within me a firm and lasting belief in the power of education. Initially this belief manifested from a very early age, as a calling to be a teacher - which certainly made high school careers classes very easy. Unlike my peers, I never doubted what I planned to do with my life - the difficult decision was the choice of field in which I would specialize. I knew that I was an educator and that I had, and have, a passion for the environment, particularly the coastal environment, but I was also strongly drawn to the Arts and, specifically, to literature and narrative. The choice, however, was eventually made and the rest, as the saying goes, is history.

A relatively insignificant event made me realize how much the coastal environment meant to me. During an idyllic evening spent sailing a small (single person) yacht around Darwin Harbour, the full glory of the coast caught in the lingering rays of the dying sun and palms softly swaying in the last of the dry season breezes, the glittering surface of the water was suddenly broken by the sleek head of a dugong coming up for air. The dark shape of its mate could just be discerned grazing on the seagrass meadow below. The fragility and finiteness of such incredibly magical experiences were highlighted to me when, later that night as I was driving home from the yacht club, I passed yet another new development site that had "reclaimed the mangroves" to build more holiday homes along the coast. As a result questions started to rise in my mind. What is happening to the Australian coast? The mangroves are natural nurseries for many marine animals, so how can 'reclamation' be the right term? Can this continual development be sustained in such a fragile environment? Don't people care about what's going on? How do we raise people's awareness of what is happening here and protect this habitat?

At work the following day I had the opportunity to raise these questions with the Keepers from the Territory Wildlife Park (TWP) Aquarium. On this particular day, the aquarium keepers were getting ready for the daily dive to feed the animals that inhabited the aquatic exhibit. As marine educators it was their role to talk to the public and explain what was happening inside the tank. While one keeper did this, the other would feed, check and play with the animals in their aquatic environment.

The keepers checked their dive equipment as we discussed what was happening to the local coastline, and in particular to the mangrove areas that were such an important part of the tropical
environment. I soon realized that the strength in which the keepers expressed their opinions and concerns was reflective of the passion and enthusiasm that they exhibited for the animals in their care.

As we talked I sat (as I often did) on the edge of the large tank, my feet dangling in the shallows while far below in the aquarium tunnel, the vague outline of zoo visitors could be seen congregating in anticipation of the underwater show that was about to take place. I felt something soft flop onto my feet and looking down, I was mesmerized by the large stingray that had mistaken my toes for small fish and had come up to see if they were worth nibbling. Too soon, the sleek body of the ray gently slid off my feet and went in search of tastier morsels from the divers’ feeding buckets now below.

The impact of this amazing experience, however, stayed with me. At the time, it gave me insight into why the keepers felt such a connection to these funny and gentle animals. Upon further reflection, the combination of my concern for what was happening to the coastline, the experience with the stingray and the conversation with the aquarium keepers, proved to be incredibly powerful.

The passion and commitment the keepers exhibited when they talked about the marine environment was contagious. This drew me to the realization that marine educators were enthusiastic and passionate people and that it was these attributes that inspired those around them. I began to wonder if marine educators’ personal worldviews impacted or influenced the way in which their audience saw the world and connected with it. How (or if) this understanding affected their approach to their work and if they influenced the general public and specific members within the marine environment. When I came to work on the PhD thesis, these questions led me to seek out marine educators, particularly those working with or within community groups.

The experiences I had, both as a child and as an adult, proved embryonic to the formation of a new way of personally seeing the world and, eventually, to the focus of my PhD thesis. It, therefore, seemed natural to explore the marine educators’ stories within my research and, in doing so, adopt a narrative methodology.

In researching and writing this thesis, I have finally combined my love of the Australian coastal and marine environment with my love of narrative.
1.4 The focus of the study

This study investigates the diverse roles marine educators play in influencing and interpreting government policy, the consequent relationships they have with policy, community and education, and what value system informs their actions. It has been undertaken with marine educators in Victoria, Australia and in British Columbia, Canada.

Over the years, many human and financial resources have been expended on coastal and marine education programs that are designed to conserve the coastal zones or increase awareness of the necessity to conserve these areas. Victoria, for instance, has been a leader in Australia in aspects of this field, through instigation of marine parks and sanctuaries, and the development of coastal stewardship programs. In British Columbia, the Salmonid Enhancement Program broke new ground in public involvement and stewardship when it was launched in 1977. This study of the marine educators who design and deliver these types of programs provides enlightenment on the role of the marine educators and what drives their practice.

There are three elements embedded within this research. The first focuses on marine educators and those that educate for, about, within and from the coastal marine environment and what informs this commitment. The second element investigates the roles and relationships these marine educators play with and between policy, community and education. The third element concerns the insights that can be gained from talking to those acknowledged experts, concerning marine education across these different contexts.

Through contacts in Canada, I realized there were some clear similarities regarding identified coastal marine issues in both countries, and yet some major differences. Being Commonwealth countries, both Canada and Australia have similar government infrastructure, and a similar culture. However, underlying cultural differences in the way the coastal marine environments are utilized and viewed in both countries made it possible to explore the role of context in shaping marine educators’ views and practices.

To fully examine the three elements, described above, that underpin this research, it was necessary to understand the policy frameworks within which marine education has evolved over the last 10
years or so. This analysis of legislation in both Canada and Australia, also offered the opportunity to understand the different policy settings in which the marine educators work.

In this study, the stories and driving forces behind key “expert” marine educators and their commitments are investigated. By interviewing peer-identified “experts” in the field of coastal marine education in both countries I have been able to explore if their experiences and beliefs have been influenced by their cultural context.

This study enables me, as a researcher, to add to the discourse surrounding the issue of effectively involving the community in environmental management and stewardship programs, by investigating the role of marine educators in this relationship. In order to do this, the research seeks to address the following questions:

1. What drives the marine educators’ practice and where does this come from?
2. What is the relationship between marine educators, the community, education and government policy?
3. What can we learn about marine education from the marine educators?

1.5 Significance of the Study

As discussed previously, there is great concern internationally for the impact our existing practices have on the coastal marine environment. Calls have gone out for a change in the current mode of operation with regard to coastal management planning and implementation. The need for community involvement in this process has been identified, and respective governments have formulated policies and legislation accordingly. The process of communicating strategies and encouraging community participation is commonly driven by marine educators.

The role that marine educators play in this process and the relationships they develop and mediate within as a result, needs to be investigated and unravelled. In this study I examine the marine educators’ roles through the stories they tell and, in doing so, contribute to conversations regarding their input as influencers and drivers of change at both a government and a community level.

The significance of this study lies in the following:
1. **There is a need to explore the role of educators as change agents by examining their practice and determining how it is informed.**

Marine educators work closely with local community groups to educate, assist and support them in protecting and caring for the coast. Through various avenues the marine educators present and interpret management strategies for the community. By educating and encouraging community participation in marine management decision-making and implementation, they empower the public to become active in political conversations regarding coastal protection and conservation.

This study investigates the marine educators’ pedagogical and epistemological practice, their role in marine and community education, and what informs their practice.

2. **By accepting the premise that marine educators are agents for change, then there is a need to understand the relationship between the marine educators, the community, education and government policy.**

Although much research has been undertaken about and within the community (Kelly, 1991; Kozak, 1995; Lindenmayer, Tanton, Linga & Craig, 1991; Monroe, Ozarart, McDonell, Plate, 2009; Shukla, 2007), little has been done specifically in regards to the coast. In particular, little work has been undertaken on the link between educators, policy development and its implementation in coastal and marine environments.

With the shift towards stewardship, marine educators have emerged as a key link between policy, community and education. By working closely with local community groups, marine educators are well situated to both educate and advocate; influencing and interpreting policy development framed around stewardship. They are able to present and interpret governments’ management strategies to the community and to educate and encourage public perceptions to influence and promote change. In doing so, they become a pivotal link between community groups and government agencies. A gap is filled in marine policy and education research by listening to the marine educators’ stories and investigating their self-perceived role in this process.
3. **There is a need to understand how teachers/educators work in specific areas (in this case, marine education) and what we can learn from their experiences and expertise about this specific component of education.**

In listening to the marine educators stories we can gain insight into their experiences over time in the marine education field. By drawing on the understandings they have gained and their subsequent expertise and position as informed commentators of the field, we can build on the knowledge base that underpins the field of marine education as a sub-set of environmental education.

In addition, by exploring the literature around writing teachers lives it becomes obvious that there is a distinct need to develop a bank of case studies of the work of informal and community environmental educators. In giving voice to the stories of marine educators and their past experiences, passions, drivers and concerns regarding the coastal marine environment, this study adds to a repository of rich data on teachers work.

4. **There is a need for a cross-cultural view**

Very little research has been reported on the role and work of marine educators. The research that has been undertaken has usually been done at a local level and has rarely gone beyond the borders of the relevant country under study. In this study I have taken this field to another plane by investigating the stories and concerns of marine educators on both sides of the Pacific Ocean. By undertaking a cross-cultural view of the roles of marine educators, this study adds a new dimension to the discourse around marine education, the role of educators in community education, and how these might be impacted by the cultural, political and legal context of which they are a part.

1.6 **The thesis in outline**

Chapter 1 of this thesis has explored the research problem, the focus of the study, the rationale for undertaking the research and the potential significance of the findings.

Chapter 2 of the thesis reports on the education literature that is relevant to this study. Here I discuss the definitions of a number of key concepts as outlined by the literature. This is a generic exploration of the literature as pertains to the field of education, particularly environmental
education, as it relates to a global perspective and is therefore relevant to both Australian and Canadian marine educators.

Chapter 3 focuses on establishing the methodology and theoretical framework that underpins the research I have undertaken. In selecting a methodology, I have investigated a number of possible ways of producing and analysing the data. In this section, it is argued that research methods that were multi-faceted were the most appropriate. Hence document analysis and interviews formed the basis of the research. Case studies were informed by narrative inquiry.

Chapter 4 focuses on the relevant policies, acts and strategies that pertained to both the Australian and Canadian marine and coastal environment in the last decade or so. The documents identified are those within which the interviewees worked during the conversations I had with them, thereby placing this component of the research within an historical location.

In Chapter 5 the marine educators interviewed in this study are introduced and their profiles explored. This chapter situates the research participants both historically and theoretically within the study, giving insight into who they are and where they have come from. Their past experiences and personal stories provide a history of context that shapes their value system and actions. It is this understanding of the world, what frames it and how both understanding and framing inform the marine educators' pedagogy and actions are explored in Chapter 6. This chapter, therefore, reflects on the components that shaped the person and their practice within the field of coastal marine education.

Chapter 7 explores the role of the marine educators in informing government policy and community interactions and examines the relationships that the educators have between the three elements of community, policy and education. In doing so, this chapter teases out the part the educators play in linking these components and the manner in which marine educators' practice shapes government policy and, in turn, is shaped by it. Consideration is given to the link between the development and implementation of legislation and policy with the general communities as perceived by the marine educators.

Chapter 8 concludes the dissertation. It is within this chapter that I use the findings of the research to address the three questions that drive the study (outlined above) and draw out the implications
and conclusions from the analyses of this study. In addition, I offer a personal reflection of how my thoughts and feelings have ebbed and flowed during the course of the voyage I have undertaken in researching and writing this thesis.

1.7 Chapter summary

This chapter introduces the research problem and its significance with particular reference to the role of marine educators and the important links that are formed and maintained in the relationships they make between community groups and government legislation and policy.

In the following chapter I contextualize the research problem by focusing on the literature that informs and underpins this study.
Chapter 2

Oysters and Pearls: The literature review

One never knows what chance treasures those easy unconscious rollers may toss up, on the smooth white sand of the conscious mind; what perfectly rounded stone, what rare shell from the ocean floor. Perhaps a channelled whelk, a moon shell, or even an argonaut.

(Anne Morrow Lindbergh, 1977)

Introduction

Just as the waves occasionally toss up a rare shell or a precious treasure as a gift from the sea, so too can studies of the literature surrounding a topic reveal invaluable thoughts and comments from other researchers. Occasionally the concepts put forward are so perceptive and discerning, they can be claimed to be rarities to be treasured.

This research focuses on the vital role of educators within a marine environment and their relationships with marine environmental and community education and government policies. Through this focus I explore how marine education is defined and interpreted and investigate what informs the personal and public practice of marine educators. In so doing, I uncover key elements that can be learnt from the practices of recognised experts in the field to inform the academic literature around marine education.

The previous chapter reflected on the focus of this research study and its significance to the field of marine education. In this chapter I investigate pertinent examples of the relevant literature of environmental and marine education and to community education. (Legislation and government policies that provide the backdrop for the marine educators work are discussed in Chapter 4).
The same principles that underlie both environmental education (EE) and education for sustainable development (ESD) underpin the efforts of educators practicing in the field of marine education. These include the need to incorporate experiential practices, recognition of lifelong learning, and identification of personal experiences that can influence and shape both our environmental sensitivity and our behaviour.

In this chapter I briefly summarise the history and framing of EE and ESD policy to provide context for my study and highlight elements that inform the practice of marine educators in informal settings. In particular, I review key features of environmental education that inform marine educators’ work, specifically those related to the understandings of the relationship between knowledge, attitude and action; the role of place-based and experiential approaches to education; and the significance of personal experiences. In addition, I explore the community education and stewardship literature to establish the public context in which marine education occurs, and report on published education research into public marine education. Finally, I outline the research questions for this study and the rationale for their focus.

2.1 A History of Environmental Education

Although the environmental education (EE) movement only began about five decades ago, commitment to the principles of environmental conservation has been a part of many cultures for many years (Howell, 1997; Linke, 1974a). In this section I trace the purposes and history of environmental education to provide a context for discussion of the development of marine education.

2.1.1 Perspectives and Purposes in Environmental Education

Environmental education authors and practitioners have a shared concern for the environment and recognition of the pivotal role education plays in enhancing human-environment relationships. However, they possess widely differing visions of environmental education (Gough, 1997; Hart and Nolan, 1999; Sauvé, 1996, 2005). There are many underlying paradigmatic conceptions that shape the construct of ‘environmental education’ and that influence and frame the various pedagogical approaches and strategies that are advocated and adopted. The histories and definitions of these environmental education approaches are frequently contested as educators debate and deepen their understanding of the field, the framing discourses, and the diverse foci and modes of educative activity. Sauvé’s (1996) overview indicates the depth and breadth of the dominant
conceptions and worldviews held by practitioners of environmental education, as well as the traditional understandings and emerging ideas that exist within the field.

By grouping various theoretical and pedagogical understandings and strategies, Sauvé (2005) identified 15 ‘currents’ or ways of envisioning environmental education and mapped out their history and origins. In doing so, she claims that

"The merits of each current as a source of inspiration must be gauged both in terms of the particular world view it promotes and with respect to the unique characteristics of each pedagogical situation (including the objectives pursued and the context of the intervention) (Sauvé, 2005, p. 12)."

These ‘currents’ are grouped according to when they originated but they vary in their dominant propositions. For instance, seven ‘currents’ have been grouped into the category “Currents with a longer tradition in environmental education”. These include ‘currents’ that are centred on human relationships with nature, for example the Naturalist current (“recognises the intrinsic value of nature, above and beyond the resources in provides” (Sauvé, 2005, p. 13)) or the Conservationist/Resourcist current (where the focus is on environmental management as a recurring theme), and others that adopt a more problem solving or scientific focus, such as the Scientific proposition (where the accent is on tackling environmental realities utilising scientific rigour and the emphasis is on the development of knowledge and skills in environmental sciences).

The second grouping is listed under “Currents more recently emerged in environmental education” and consists of eight multifaceted approaches to environmental education. These include the Praxic current (a current that “emphasizes leaning in action, by action, and for the ongoing improvement of action” (Sauvé, 2005, p.22) and essentially consists of integrating reflection and action so that they feed into each other). This group also incorporates the Feminist current (“sheds light on the relations between the domination of women and the domination of nature” (p. 25). Similarly, the Sustainable Development/Sustainability Current has been categorised into this second group.

Of these new currents the strand of Environmental Sustainability has come to dominate the policy discourse over the years. Sauvé (2005) describes how the ideology of sustainable development, made popular during the 1980s, diffused into the field of environmental education, gradually becoming stronger until becoming a dominant perspective. The Education for Sustainable
Development approach now stands as both a dominant and contentious conception underlying the environmental education movement as well as a principal element in environmental policy development. As the international environmental policy strategies and documents provide the framework in which Marine Educators work, it is important to look at the global context, histories and definitions of these documents to contextualise the role these educators play.

Annette Gough (1994) declared Bill Stapp as a founding father of environmental education in her PhD thesis. In his interview with her, Stapp voiced his understanding that community and policy makers needed to work together to change society’s perceptions and actions within the total environment. He also flagged the importance of education programs specifically designed for the public, policy decision makers and those responsible for management of natural environmental resources.

Perhaps one of the most important ways to change society is by working with the policy makers, who can go about as far as the public will allow them to go. Thus it was really important to develop strong educational programs that would be designed for the general public, the policy makers, people who make major decisions on the environment and the environmental managers. (Stapp 1991, cited in Gough 1994, p. 187).

I propose that the logical extension (and the underlying assumption) of the concept that the development of such educational programs was important, was the understanding that those that designed and delivered the programs (that is the environmental educators) provided a critical link between the public, policy makers (and therefore policy) and education. The emphasis on this critical link between environmental decision-making, the public, and education in the marine environment, provides the historical context within which this study is set.

2.1.2 A Global History of Environmental Education

A detailed exploration of the history, development and evolution of environmental education has been undertaken and reported in considerable detail by other researchers (Gough, 2006; Gough, 2007; Hungerford, 2010). I do not intend, therefore, to reproduce this work here. I shall, however, review the key elements of this discourse in order to identify the main drivers and understandings in environmental education that shape marine education.

Academic articles pertaining to environmental education have been published for some time, although a major increase in interest has conspicuously occurred since the 1960s – for example, the US Journal of Environmental Education was founded in 1969. However, from reviewing the
literature, it is clear that the seeds of environmental education were sown many years ago. Louis Agassiz, for instance, (one of the founders of *Nature Study*), was a strong advocate of “learning through observation and hands-on acquisition of knowledge” (Karleskint, Turner & Small, 2010, p.7). In 1873, he founded the first marine biology laboratory in the United States\(^1\), the aim of which was to help teachers improve their methods of teaching about nature by enabling them access to observe and interact with marine wildlife within the organisms’ natural habitats. *Nature Study* was, by its very intent, heavily reliant on a scientific interpretation of the natural world. This positivistic view of the world has been challenged during the ensuing years and these ideas have germinated and grown into the conceptual understandings, methodological frameworks and conservation educative philosophies that are debated today.

In the 1960s, a growing awareness of the threat of environmental degradation led to recognition of the need for a societal – and global – attitude and behavioural change. Publications by eminent scientists and thinkers of the time (for example, Rachel Carson’s “*Silent Spring*”\(^2\) (1962), “*The tragedy of the commons*” written by Garrett Hardin in 1968, and Paul Ehrlich’s (1968) “*The Population Bomb*”) started to lay the foundations for a new paradigm. As increasing numbers of scientists called for acknowledgement of the imminent international environmental crisis and the need for increasing public awareness of this impending disaster through information and education programmes, a worldwide environmental movement was set in motion (Gough, 2007). This set the framework for the beginnings of the field of environmental education.

The term ‘environmental education’ was first used in the United States and the UK around 1965 (Gough, 2006) and in the late 1960s and early 1970s a definition and the major objectives of environmental education were framed (Stapp, 1969). These objectives were primarily concerned with introducing ecological content into formal and non-formal curricula. It was at the same time that governments began to formulate environmental legislation and even environmental education policies and programmes in response to the call for attention from scientists and the general public (Gough, 2006).

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1 Which is still today an internationally recognised scientific and educative institution. It is also the inspiration and predecessor of the marine laboratory at Woods Hole (Karleskint et al, 2010). It is here that one of Agassiz’ favourite sayings: “*Study nature, not books*” is mounted on the library wall as a reminder to all of his beliefs and his work.

2 For instance, many of the interviewees in my study mentioned Rachel Carson’s “*Silent Spring*” as a key inspiration to their environmental education mindset.
In 1974 the UNESCO-UNEP International Environmental Education Programme (IEEP) was created to "develop an overall framework and direction for a co-operative international programme to further environmental education" (Greenall & Wolmersley, 1976, p. 19). According to Gough (2006), the activities of IEEP included “two pivotal events in the history of the development of environmental education”. These were: the 1975 Belgrade International Workshop on Environmental Education which produced the Belgrade Charter; and the 1977 Intergovernmental Conference on Environmental Education which produced the Tbilisi Declaration.

The Belgrade Charter outlined a global framework for environmental education that highlighted the objectives of environmental education (that is around awareness, knowledge, attitudes, skills, evaluation ability and participation); described the target audience for environmental education (both formal and non-formal sectors); and stated the guiding principles for environmental education programs (UNESCO, 1975). The Tbilisi Declaration is an internationally recognised summary statement about environmental education which states:

Environmental education is a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments, and skills to work individually and collectively toward solutions of current problems and the prevention of new ones. (Stapp & Cox, 1979; UNESCO, 1978).

The goals and objectives of the 1977 Tbilisi Intergovernmental Conference were endorsed at the UNESCO Moscow International Congress on Environmental Education and Training held in 1987 (UNESCO-UNEP 1988). In doing so it was stated that these, along with the guiding principles outlined in the Tbilisi Declaration, “be considered as providing the basic framework for environmental education at all levels, inside or outside the school system” (UNESCO-UNEP, 1988, p. 6). These recommendations clearly stated that:

The goals of environmental education are:

- To foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas.
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment.
- To create new patterns of behaviour of individuals, groups, and society as a whole towards the environment.

In 1980 the International Union for the Conservation of Nature and Natural Resources (IUCN) in collaboration with the UNEP and the World Wildlife Fund (WWF) published “The World Conservation Strategy” (IUCN, 1980). This document aimed to encourage a focussed approach to resource conservation and to provide policy guidance on how to action the strategies. This triggered the development of national and local conservation strategies in countries around the world – including Australia and Canada. This is particularly relevant to my study as the document outlined priority requirements and national and international actions that required precedence. These priority concerns included management of the marine environment and encouraging public participation in decision making and education – the resolution of which, (this study argues), marine educators play a key role:

Organizers of education programmes should determine the main target groups of such programmes, define precise programme objectives, and select the media and techniques that are most effective with the target groups. Results, together with the techniques and materials used, should be regularly evaluated against the stated objectives. The most important target groups are:

- Legislators and administrators;
- Development practitioners, industry and commerce, and trade unions;
- Professional bodies and special interest groups;
- Communities most affected by conservation projects;
- Schoolchildren and students.

(IUCN, 1980, p. 47)

One of the key strategies or principles outlined in the National Conservation Strategy for Australia (NCSA) was “to educate the community about the interdependence of sustainable development and conservation” (DHAE, 1984, p.16). This recognition of the need to educate the public and to involve them in conservation and sustainable development reflects the shift in governmental attitude that has coalesced into calling for community involvement in policy decision-making and management.

2.1.3 Education for Sustainable Development (ESD)

The Brundtland Report, Our Common Future, from the World Commission on Environment and Development (WCED) (Brundtland, 1990; UNWCED, 1987), identified teachers as crucial to helping bring about the desired social change that would lead to sustainable development in the future, and thereby recognising that educators (both classroom based and external or non-formal) have a significant role in raising awareness and educating for a more sustainable future:
The Commission has completed its work. We call for a common endeavour and for new norms of behaviour at all levels and in the interests of all. The changes in attitudes, in social values, and in aspirations that the report urges will depend on vast campaigns of education, debate and public participation.

To this end, we appeal to "citizens" groups, to non-governmental organizations, to educational institutions, and to the scientific community. They have all played indispensable roles in the creation of public awareness and political change in the past. They will play a crucial part in putting the world onto sustainable development paths, in laying the groundwork for Our Common Future.

(UNWCED, 1987, p.xix)

In 1992, the United Nations Conference on Environment and Development was held in Rio de Janeiro. Also called the Rio Earth Summit, this conference “generated a sense of urgency about the need to alter our behaviour to reduce environmental degradation. Sustainability emerged as the way forward” (DSE 2010), and a global action plan (Agenda 21) was produced which included an education chapter (Chapter 36) that prioritised “reorienting education toward sustainable development” (UNCED, 1992). That “education was critical for promoting sustainable development” (UNWSSD, 2002) was declared during the 2002 United Nations World Summit on Sustainable Development and the recommendation that the United Nations General Assembly adopt a decade of education for sustainable development (starting in 2005) was made. It was later that year that this resolution was adopted as part of the Johannesburg Plan of Implementation by the 57th Session of the United Nations General Assembly, and so the international Decade for Sustainable Development (DESD) began in 2005.

In 2009 in Bonn, Germany, the UNESCO World Conference on Education for Sustainable Development produced a document (the Bonn Declaration) that reviewed progress at the Decade midpoint, and made recommendations for furthering the progress already made during the DESD (UNESCO, 2009). Notably, this was the first declaration to deal exclusively with education for sustainable development (Lotz-Sisitka, 2009).

By examining the environmental education/education for sustainable development literature it becomes apparent that there is division within the education arena as to the evolution (or assimilation) of these two schools of thought. Some environmental education scholars challenge the concept of education for sustainable development (for example Jickling 1992), others support it (for example Fien 1993; McKeown & Hopkins, 2005; Tilbury, 1995; Tilbury, 2004), and yet others
have identified environmental education and education for sustainable development as being synonymous (Gough, 2006; Katayama, 2009; McKeown & Hopkins, 2003) and so have adopted the term ‘environmental education’ as an all-encompassing term, or as Sauvé (2005) argues, environmental education/education for sustainable development is only one of many conceptions or currents that inform environmental education.

Irrespective of the school of thought, this ‘reorientation’ towards sustainable development has had the subsequent effect of altering the context in which community-based environmental educators worked. Jickling and Wals (2008) regard “the emergence of education for sustainable development in educational policies and the pressure on environmental educators around the world to re-frame their work as contributions towards sustainable development” (p. 4) as being problematic. Certainly, this reorientation has resulted in a change in the way environmental educators approach aspects of their work. For example, applications for funding or government support now required a shift of terminology. Instead of applying for grants for environmental education programs, community educators (in the case of this study, marine educators) are now required to submit applications for programs incorporating ‘education for sustainable development’ if the application was to be successful. This reflects (and provides evidence for) the altered way in which community environmental educators were identified by government agencies. The degree to which the educators subsequently began to identify themselves in the same way requires future investigation to determine the effects of such a paradigm shift on framing, development and delivery of community education and the educators. My research goes part way towards this investigation by examining what informs the marine educators’ pedagogical and epistemological understandings and how this frames their practice.

There has been a great deal of debate (within the EE and ESD literature and governmental policy) about the precise definition of Education for Sustainable Development (or Education for Sustainability), which those responsible for reporting on the DESD have welcomed. Arjen Wals, (author of ‘Education for Sustainable Development 2009’ - a review of the completion of the first phase of the DESD monitoring and evaluation process), reasoned that differences in ESD definition were unimportant as they enabled a local understanding of ESD to evolve. It was more important, he argued, that consensus was reached around the key principles of ESD, particularly its scope, purpose and practice (Wals, 2009). The same document provided an example of an ESD description that, the author argued, identified a number of these principles:
Education for Sustainable Development (ESD) is a learning process (or approach to teaching) based on the ideals and principles that underlie sustainability and is concerned with all levels and types of education. ESD supports five fundamental types of learning to provide quality education and foster sustainable human development – learning to know, learning to be, learning to live together, learning to do and learning to transform oneself and society. (Wals, 2009, p.25).

ESD has also been perceived to be fundamentally about encouraging people to embrace behaviours and actions that empower everyone to enjoy an equitable and full lifestyle without deprivation of the rudiments (Elias, 2006).

By reviewing the above events in their chronological order, (and some of the documents framed by these events), this section has revealed a duality in the demand for policy development. There has been an increase in the demand for government policies and strategies to manage and resolve emerging environmental problems; and an increase in demand for government strategies that involve and empower the public to take action in the resolution of these problems. The fact that education is identified as central to the implementation of both these aspects (as discussed in this review) reflects the close relationship that exists between government policy, education and the community.

2.1.4 Environmental education in Australia

According to Gough, “Australia has a long history of being involved in environmental education” (Gough, 2009, p. 2) and its origins can be traced back to the 1960s. In 1970 the first national conference on environmental education was convened under the auspices of the Australian Academy of Science. It was here that recognition was given to the importance of environmental degradation as both an imperative and important aspect of education (Frankel, 1970). Over the ensuing years, the emerging field was shaped by the Australian Government’s participation in the UNESCO and UNEP conferences and workshops and by the designation of environmental education as a national priority area for curriculum material development (Gough, 2009).

Within the Australian Constitution, education is not mentioned and therefore is a State and Territory responsibility, nor is environmental management and thus it too is the responsibility of the State or Territory in which the environment is located. Over past decades, however, drawing on international policies and other precedents, the Australian government has assumed more
responsibility for aspects of both environmental management and education, and, in 1980, endorsed and published the first national statement on environmental education for schools (Greenall, 1980). A second national environmental education statement was later released in 2005 by the Department of the Environment and Heritage.

In 2000, Environment Australia released the Australian Government statement on *Environmental Education for a Sustainable Future: National Action Plan* (Environment Australia, 2000). This document politicised Australia’s environmental education efforts by establishing the need to link them with the nation’s environmental priorities, thereby identifying environmental education as a political priority (Gough, 2009). The document called for the inclusion of sound environmental education elements in planning for environmental conservation strategies and contained a number of initiatives that the Australian Government quickly moved on. As stated in the document:

> A key element in the National Action Plan is a move from an emphasis on awareness raising to an emphasis on providing people with the knowledge, values and skills to actually make a difference to the protection and conservation of Australia’s environment. (Environment Australia, 2000, p. 5)

This plan was succeeded in 2009 by the new National Action Plan, *Living Sustainably: The Australian Government’s National Action Plan for Education for Sustainability* (Department of the Environment, Water, Heritage and the Arts). This plan included a series of actions intended to support four strategies:

- Demonstrating Australian Government leadership
- Reorienting education systems to education for sustainability
- Fostering sustainability in business and industry
- Harnessing community spirit to act

However, concerns have been voiced that little new activity has occurred since the 2005 launch of the UN Decade of Education for Sustainable Development. According to Gough there has been “more a continuation of existing or already intended activities” occurring (2009, p. 3), which can be seen as problematic. As Tilbury (2006) has pointed out, “(i)if the Decade means “business as usual” for those already engaged in ESD, then opportunities will be missed” (Tilbury, 2006, p. 80).
2.1.5 Environmental education in Canada

The conceptions underpinning our understandings of environmental education are much contested and influenced by the societal and educational conditions that impact upon all the educational development in a specific country. In Canada, as in other countries, these discussions are contextualised within historical accounts of policy. It is therefore valuable to examine how these policies and practices within environmental education have emerged within the Canadian context.

The Canadian Constitution Act of 1867 states that education (including legislation and funding pertaining to education) is the responsibility of the thirteen individual provinces (10) and territories (3) (CMEC, 2007). This means that terms and definitions for environmental education and education for sustainable development are also provincial/territorial responsibilities (CMEC, 2010). The management of environmental education programs, especially those that involve public participation or stewardship, tend to be managed by the environmental departments.

The provincial and territorial departments of education therefore control the curriculum which reflects the unique features of each province and territory’s geographic, cultural and political backgrounds (Hart, 1990). According to Hart (1990) the “most important source of diversity stems from Canadian adherence to policies of bilingualism, multiculturalism, and religious pluralism” (p. 46). This multifarious nature of educational development within the provinces and territories of Canada has affected how environmental education has been understood and practiced within Canada (Hart, 1990; Russell, Bell & Fawcett, 2000).

The proximity of the United States to Canada has also enabled an exchange of people, culture and ideas that have, in turn, impacted on the egalitarian thinking that has contributed to science programs (and indirectly to the developing field of environmental education) within Canada. This has been enhanced (particularly in the western provinces) by the geographical, topographical and environmental differences “that influenced economic progress” (Hart, 1990, p.46).

According to Hart (1990) the focus of science education in Canada was traditionally on practical issues. However, in the 1960s, the Economic Council of Canada “advocated science as a means of securing a better economic future for Canada” (Hart, 1990, p. 46) which resulted in relevant
science educational programs being imported from the US\textsuperscript{3} and implemented in Canadian classrooms. The focus again shifted in the 1980s to school courses designed to prepare students for post-secondary education and to provide them with skills for life. As a reaction to the American influence in Canadian science programs, Federal support was provided to implement these ‘new’ Canadian studies which related to concepts such as environmental issues and the impact of science and technology in Canada (Hart, 1990, p.46).

Thus many of the educational reforms that have taken place within Canada have resulted from pragmatic considerations rather than an overall national conception of what would benefit the country’s interests. According to Hart “(t)his perceived lack of national goals is a contentious issue in Canada – an issue that has directly impacted core school subjects and non core (sic) areas such as environmental education” (1990, p. 47). At the beginning of the last decade of the 20\textsuperscript{th} century, Hart (1990) perceived the absence of a coherent national understanding of environmental education as being due to a lack of common perspectives; lack of an active federally funded network; and the absence of any national journal focusing on Canadian environmental education. Since this time, the Canadian environmental education movement has passed a number of key milestones (Russell, Bell and Fawcett, 2000).

In 1986 the Brundtland Commission held a series of public hearings in Canada that had a profound impact leading, a year later, to the establishment of a National Task Force on the Environment and the Economy (NTFEE). Recommendations from this task force directed the formation of Round Tables on the Environment and the Economy (RTEE) at national, provincial/territorial and local levels (Bell, 2009), thus, the Canadian National Round Table on the Environment and the Economy was established in 1988 (CMEC, 2010) with one of its first tasks to establish a task force on education. In 1991, the NRTEE helped to initiate the creation of a non-government organisation, Learning for a Sustainable Future (LSF) whose mandate was “to incorporate sustainable development into education policy across all provinces and territories” (CMEC, 2010, p. 8).

However, according to Jickling (2006), despite the resources available to them, these efforts were “stunningly ineffective”: “Education for sustainable development has never really been picked up in a really significant way in Canada” (Jickling, 2006, p. 99).

\textsuperscript{3} According to Hart (1990) these programs “were developed for academically oriented students but were often out of reach of the general student” (p. 46)
This observation converges with Sauvé’s (2005) contention that, although the concept of sustainable development currently dominates within international (and national) educational policy and thinking, it is one of many understandings that inform the environmental education movement. It also highlights that while education for sustainability may privilege many governance and environmental management objectives, it may not equally provide a supportive framework that is inclusive of the various interpretations and principles of environmental learning and education that are held by Canadian environmental educators.

Following the 1992 UNCED, interest in developing a more coordinated approach to environmental education began to grow in Canada. The Treaty on Environmental Education for Sustainable Societies and Global Responsibility (Anon, 1992) from the Earth Summit proved to be particularly generative for Canadian environmental educators. This NGO drafted treaty defines education as value-laden and outlines principles that are inclusive and that welcome cultural and ecological diversity. According to Russell, Bell and Fawcett (2000), these principles resonated with an increasing number of Canadian environmental educators whose concerns, aspirations and practice were shaped by diverse pedagogies and educational understandings (for example, critical pedagogy, eco-feminism and feminism, bioregionalism, indigenous knowledges, and so on).

During the 1990 and 1991 North American Association of Environmental Education (NAAEE) annual conferences, Canadian members met to discuss the feasibility of initiating a Canadian environmental learning network, and at the Eco-Ed: World Congress for Education and Communication on Environment and Development in Toronto in 1992 the Canadian environmental learning stakeholders met to formulate strategies for establishing a national organisation for environmental education. Their aim was to develop a more coordinated approach to environmental education in Canada. A year later, under the guidance of a volunteer steering committee this culminated in the founding of another group, the Canadian Network for Environmental Education and Communication (EECOM) (CMEC, 2010; Jickling, 2006). Its mandate was “to facilitate the development and dissemination of guidelines for excellence in the field and maximize opportunities to build synergies and ultimately make EL more successful in Canada” (EECOM, 2013). As a national, not-for-profit organisation, EECOM’s mandate is to engage Canadians in learning about their environment by “enabling teachers in both the formal education system as well as educators and communicators in all other sectors of Canadian society” to “work together to nurture environmentally informed and responsible individuals” (Government of Alberta, 2012).
It was during this post-Rio period that environmental education in Canada really began to develop (Jickling, 2006). The consequent establishment of *The Canadian Journal of Environmental Education (CJEE)* in 1996 enabled a more coordinated approach to environmental education and provided a second national arena for Canadian environmental educators to exchange information and ideas. According to Russell, Bell and Fawcett (2000) this meant that “the combined (if not necessarily united) voices of Canadian environmental educators are beginning to be heard” (p.198).

In 1999, the report ‘Educating for Sustainability: The Status of Sustainable Development Education in Canada’ was published through the Sustainable Development Initiative of the Manitoba Department of Education and Training. This document provided a synopsis of the environmental education and education for sustainable development initiatives undertaken across all the provinces. The report found that “essentially no formal policy dealing with environmental education or education for sustainable development had been enacted” (CJIELP, 2006, p. 20).

Between 1999 and 2002, Environment Canada undertook a National Consultation on Environmental Education and Sustainability. This project canvassed the opinions of 5,500 Canadians on environmental education and informed the 2002 national document *A Framework for Environmental Learning and Sustainability in Canada* (Government of Canada, 2002). This framework provided an extensive list of objectives and criteria that were to be included in future national action plans (CJIELP, 2006).

In 2005-6, an initiative to form a National ESD Expert Council (NESDEC) and ESD working groups (ESDWGs) in each province and territory was put forward by Learning for a Sustainable Future, Manitoba Education and Environment Canada as a response to the UNDESD. The ESD working groups were to be comprised of a number of multi-stakeholders (CMEC, 2010). The NESDEC (later re-titled ESD Canada) comprised ESD experts, and was aimed at creating

> a culture of ESD in Canada bringing together senior leaders from Provincial and Federal Ministries, formal, informal and non-formal education sectors to support regional coordination, development and implementation of ESD policies, curricula, materials/resources and teacher education. (NESDEC, 2006)

Both the Council and the Working Groups were intended to support change toward ESD “within the formal, non-formal and informal education systems” and in due course, “ to help citizens acquire the
knowledge, skills and values they need to contribute to the development of a socially, environmentally and economically sustainable society” (ESD Canada, n.d.)

At this time, sustainable development within Canada was controlled by varying levels of governments, which led to a piecemeal approach that failed to deliver major results. In 1995, amendments were made to the Auditor General Act that ensured departments and agencies developed their own sustainable development strategies. The office of the Commissioner of the Environment and Sustainable Development (CESD) was established to monitor the implementation of this mandate. Over the following decade, however, it became clear that this decentralised approach was not achieving the desired results. Accordingly, the Federal Sustainable Development Act (FSDA) was passed in 2008 which required that a Federal Sustainable Development Strategy (FSDS) was developed and implemented. Published in October 2010, the FSDS comprised four key implementation strategies, one of which highlighted the need for public education and participation to ensure the effective implementation of the strategy (Environment Canada, 2010).

2.1.6 Approaches to environmental education within the two countries
The key purposes of environmental education are intimately bound up with government policy and the need for community awareness and activities. There are strong links between government concern and education that is reflected in international and national policies (as described above). These linkages point to the presence of an intricate relationship between policy and community involvement.

As two Commonwealth countries that share many similarities but possess many differences, Canada and Australia have proceeded down different pathways in meeting the international goals set by UNESCO. Both countries have approached the Decade of ESD in different ways that reflect their pathway choices. Given these shared similarities and differences, an ideal opportunity surfaces to investigate the relationship between government policy development and decision making, community education and the educators that provide this education in the marine setting.

2.2 Features of Environmental Education
In 1979, Arthur Lucas published a model of environmental education that adopted a three-fold approach (Gough, 1993; Lucas, 1979). He proposed that education took place in the environment, about the environment and for the (preservation of the) environment. This model quickly became
the underlying framework for environmental education globally, and has remained “part of the conventional wisdom of environmental education” (Gough, 1993, p. 52), since this time. Fien (1993, p. 15) summarized the ideological principles of these approaches as follows:

- Education about the environment was the common form of environmental education which focused on knowledge. This included learning about natural systems and processes and the various aspects that influence people’s use of the environment.
- Education through the environment emphasized the use of personal experiences in the environment as “a medium for education”.
- Education for the environment aimed to engage learners in exploring and resolving environmental issues with a view to cultivating environmental values that are compatible with “sustainable and equitable use of resources”.

Many environmental educators have reflected on these three approaches, particularly in regards to the change in environmental values that necessitates a sustainable way of life (Fien and Greenall Gough, 1996). They argue that genuine environmental education can only take place if the intention of the educational intervention is for the environment (Linke, 1980; Thomas, 2005). In this way, educating in and about the environment are essential precursors to providing the knowledge and skills to educate (or to act) for the environment (Fien and Greenall Gough, 1996).

As Lucas (1979) argued, “(e)ducation for the environment entails producing persons with the technical or social skills to achieve the goal of the programme” (1979). This concept, as he notes, has led to an emphasis on the need to instil or form attitudes that support the preservation and conservation of the environment (Lucas, 1979). Such a notion of conservation ethic raised in the 1980 World Conservation Strategy where it was declared that a fostering or reinforcing of attitudes and behaviour were necessary to transform societal behaviour towards the biosphere (Gough, 1998; IUCN, 1980).

Over the years, there has been an increase and evolution in the number and range of strategies trialled and adopted to create this desired societal transformation. Of these, there are three key features that I determined were most pertinent to my study, and that I will therefore be discussing in the next section. The first is the identified link between knowledge, attitudes and actions, (that is the understanding that knowledge of the environment is required to fully comprehend the problem threatening the environment, and that it is this understanding that sets in motion a change in
attitude which then leads to future pro-environmental behaviours). As marine educators work within specific environments (that is, marine ecosystems) it is crucial to review the literature around the comparatively recent understanding of environmental education as informed by place-based connections, and thirdly I will investigate the role of an experiential approach to environmental education.

2.2.1 Knowledge, Attitudes & Action

The 1977 Tbilisi and 1987 Moscow UNESCO-UNEP conferences on environmental education recommended and endorsed the following categories of environmental education objectives:

- **Awareness**: to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.
- **Knowledge**: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.
- **Attitudes**: to help social groups and individuals acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection.
- **Skills**: to help social groups and individuals acquire the skills for identifying and solving environmental problems.
- **Participation**: to provide social groups and individuals with an opportunity to be actively involved at all levels in working towards resolution of environmental problems.


Researchers have identified this set of objectives, that range from an awareness to a citizen participation level (Hungerford et al, 1980), as representing “stepping stones to prepare and enable citizens, including students, to become actively involved in the prevention and resolution of environmental problems and issues” (McBeth et al., 2008, p. 2; McBeth & Volk, 2010).

As many authors agree, the primary goals of environmental education are to encourage environmentally responsible behaviour and to produce environmentally literate citizens (Harrison and Clark, 2003; Hungerford and Peyton, 1976; Knapp, 2000; Metzger, 1999; Roth, 1970; Sia et al, 1985; Stapp, 1969). However, much debate has surrounded the most appropriate methods to
encourage pro-environmental values and behaviour and how an individual can be moved from awareness of an issue to action\(^4\).

The traditional theory is underpinned by the understanding that (environmental) education leads to a mindfulness or a greater awareness. In turn, this leads towards a change in attitude that culminates in improved individual environmental behaviour (Bogner, 2003; Fishbein & Azjen, 1974).

Some researchers have identified that learners move sequentially through three main phases of environmental education, culminating in an environmentally aware, and pro-environmentally behaving, individual. These stages comprise:

1. Participants gain an understanding of their connection to the natural world & the underlying principles that determine natural cycles. A personal understanding of ecological knowledge is the foundation of pro-environmental attitudes & behaviour.
2. Learners must be able to synthesize this ecological knowledge & understand their roles within the environment.
3. Students learn how they can be the catalyst for changes that are necessary for a sustainable existence.

(Adapted from Farmer et al, 2007, p. 34)

This model is consistent with the sequential processes that Stapp et al (1969) and Hungerford (1996) have previously theorised.

Other researchers have argued that there is no linear progression from awareness to pro-environmental action. Instead there are many, and varied factors that affect behavioural change (Jensen, 2002; Lucas, 1979; Schindler, 1999). Some of these are dependent upon an individual’s attitude, locus of control (LOC), knowledge (including knowledge of and skill in the use of action strategies), responsibility, social norm, sexual role, sensitivity and intention to act (Hines, Hungerford & Tomera, 1986; Hungerford & Volk, 1990; Hwang et al, 2000; Sia, Hungerford & Tomera, 1985). Sia et al (1985, p. 31) indicated that an individual’s “environmental sensitivity”, “perceived knowledge of environmental strategies”, and their “perceived skill in using environmental

\(^4\) Although I am aware that there is considerable debate surrounding terminology and definition, and the concepts embedded within these (particularly in relation to the action vs behaviour; environmental literacy; and responsible environmental behaviour discourses), these debates are not directly pertinent to the focus of this thesis.
strategies” were the three most likely (and statistically significant) variables that would encourage behavioural transformation. The role emotions play in learning has been well documented (Reis & Roth, 2010; Sansone & Thoman, 2005) and it has been recognized that they are also “an important factor in our interaction with the environment” (Reis & Roth, 2010, p. 72).

Other factors that have been identified as requiring due consideration include social constraints (that is the impact of the social group of which we are a member and their corresponding values) and environmental policy regulations (Schindler, 1999; Tikka et al, 2000). It has also been acknowledged that “(e)nvironmental action involves deliberate decisions, planning, implementation, and reflection by an individual or group intended to achieve a specific environmental outcome” (Schusler and Krasny, 2010, p. 208).

There have been calls for further investigation into the relationship between awareness, attitudes and action (particularly from an ecological aspect) over the years. It is believed that the promotion of ecological sustainability and increased community participation would benefit from such investigations (Stepath, 2004), but this is beyond the scope of this research.

However, this study does provide a fresh perspective on the relationship between awareness, attitudes and behaviour by looking at this relationship through the use of an aesthetic lens. In doing so, a novel way of viewing how these aspects are linked is proposed and, by using a framework that is informed by aesthetic understanding, the drivers that underpin and shape this relationship (within a marine education context) are explored.

2.2.2 Place-based & Experiential Approaches to Environmental Education

Most environmental education (EE) programs seek: to provide an understanding of how the natural world works; to address negative feelings about aspects of the environment; to satisfy curiosity by encouraging exploration and discovery; and to centre on the individual's real-life everyday experience of the world, with an ultimate goal of individuals and groups being willing to act for the environment with environmentally responsible behaviours. As a result, environmental educators are constantly seeking to assist people in understanding the world around them and generally conduct their programs in the environment on which they are based.
Ensuring environmental learning takes place in the environment is a key principle embedded in environmental education, as is the practice of ‘direct encounters’ with the natural environment (Sandell & Öhman, 2010). Research has shown that learning experiences in natural environments are linked to individuals’ developing environmental sensitivity, understanding and pro-environmental behaviour, including potential active engagement with environmental issues (Ballantyne, Connell & Fien, 1998; Ballantyne & Packer, 2006; Ballantyne & Uzzell, 1994; Bogner, 1998; Rickinson, 2001; Tanner, 2001).

However, spontaneous learning from nature, or even desired learning outcomes, is not obvious in all learners. Sometimes learning does not ‘simply take place’ nor is it “a logical outcome of EE activities” (Brody, 2005, p. 604). Some research has indicated that a brief educational intervention may have difficulty in achieving desired changes in an individual’s knowledge, attitudes, or behaviour, and that this is subject to a range of variables that are sometimes external to the actual educational programme (Ajzen & Fishbein, 1977; Hines, Hungerford & Tomera, 1986-87; Hungerford & Volk, 1990; Kollmuss & Aygeman, 2002; Storksdieck et al, 2005; Zelezny, 1999;). Long-term pro-environmental change in an individual takes much longer than a short educational intervention would allow. As Brody points out:

Meaningful learning in nature is a result of direct experience(s) over time in which personal and value systems are created through complex cognitive and affective processes. (Brody, 2005, p. 610)

**Place-based**

The aim of place-based education is “to ground learning in local phenomenon and students’ lived experience” (Smith, 2002, p. 586). This is not a new development. Before the proliferation of schools, education took place in the local environs. With the advent of systemic schooling, this has been curtailed and learning is now directed towards textbooks and educational intercessions that can be carried out within a formal enclosed setting. Often this includes knowledge about environments that the student may never visit or people they may never meet. This makes it difficult to relate back to the individual’s real world experiences (Smith, 2002) and so can promulgate a sense of disconnection from the local environment and community (Sanger, 1997; Smith, 2002; Smith & Sobel, 2010). It is argued that this marginalizes a learner’s personal experiences of the place they live, play and grow, and of their interactions and experiences with the people, animals and ecosystems that comprise their community.
Research has shown that emotions are a significant component of learning (Reis & Roth, 2010). Individuals attach to places (for example a local beach) when the place is “imbued with meanings that create or enhance one’s emotional tie to a natural resource” (Vaske & Kobrin, 2001, p. 17). If the setting in question also has links or consequences to other aspects of the individual’s life then they are more likely to develop and practice environmentally responsible behaviour (Hines et al, 1987; Vaske & Kobrin, 2001).

In order to reconnect individuals to the natural world, a sense of belonging or of ownership needs to be re-established. The process of rebuilding a strong and healthy sense of place begins with forming an explicit connection to a place, as “(p)eople tend to care for what they know” (Smith & Sobel, 2010, p. 40). If this connection does not exist, individuals are less likely to advocate or lobby or even support policy decisions aimed at protecting or conserving natural environments, and are unlikely to direct energy to ensuring the health of their community or region (Knapp & Poff, 2001; Smith, 2007).

The role of the environmental educator (or in this case, the marine educator) is to assist in this reconnection by providing knowledge about the environment in the environment. This entails ensuring the learner gains experience (and a good experience) in developing a connection to the land. As Matt Sanger argues, “(e)ducation should provide meaning and value to places and embed students in the processes of those places” (Sanger, 1997, p. 2).

According to the sense of place literature, an educated individual develops several characteristics, either sequentially or simultaneously, that lead to an ecological and social identity, and ultimately environmentally responsible behaviour (Barry, 1995; McTaggert, 1993; Mueller Worster & Abrams, 2005; Orr, 1992; Sanger, 1997; Smith, 1992; Sobel, 1993; Thomashow, 1995).

By providing an experiential education in the local environment, learners’ personal experiences (whether recent or older) are validated, and the knowledge provided about the place communicates that the environment has value (Sanger, 1997). To assist learners to become environmentally responsible citizens they need to have an understanding and emotional attachment to a place; to be able to contextualize their place in space, that is in the history of an area in order to visualize themselves as a part of an historical continuum (Sanger, 1997) and therefore see themselves as
taking action in the future; to know they are making a difference and helping others; and to know they can make change happen (Smith & Sobel, 2010).

The concept of connection to place is particularly relevant in this study. Marine educators frequently work with individuals to empower an emotional connection or re-connection to the marine environment by enabling them to experience and discover the coastal ecosystem in a safe context. Being told about marine environments offers a cognitive understanding of a place, but it does not necessarily enable an emotional connection to occur; yet it is this emotional connection that inspires individuals to feel a sense of belonging or ownership with the site or habitat. Taking a group to the beach and enabling them to explore and discover the coastal habitat for themselves provides an experience that is both intimate and empowering; one that engages all of the individual’s senses and their imagination. It is this emotional connection and aesthetic understanding that compels individuals to want to protect and care for a place.

**Experiential and Free Choice Learning**

There is a plethora of research and data that shows that learning experiences that are tactile and exploratory are far more memorable and educative than are those that are didactic or passive (Satterthwait, 2010; RAFT, 2009). If concepts or information are directly linked and firmly embedded in experiential activities, there is more likelihood that the learner will form a firm mental foundation upon which further concepts may be built (Knapp & Poff, 2001). It is also more likely that long term recall of specific learned concepts may be shown and that these may be informed by other experiences unrelated to the educative intervention (Knapp & Poff, 2001).

Individuals often utilize a variety of learning resources to discover more about the world they inhabit. Learning may take place in a formal setting or an informal setting. A key component of informal educative settings, (such as museums, zoological gardens, botanical gardens, field centres, and so on), or interpretive programs, (including wildlife encounters in natural surroundings), is to facilitate and support visitors’ development of knowledge and pro-environmental attitudes and behaviours (Ballantyne & Packer, 2005; Dierking et al, 2002; Woods & Moscardo, 2003).

Many of the aims of informal educative settings are consistent with those that are embedded in environmental education, and are necessarily broader than those that are emphasized in formal
learning settings (Schauble et al., 1996). For example, desired learning outcomes may include encouraging curiosity and exploration, changing attitudes, evoking feelings, developing a sense of personal, cultural and community identity, and making decisions about moral and ethical issues (Ballantyne and Packer, 2005; Falk & Dierking, 2000; Hein & Alexander, 1998; Schauble et al, 1997).

Only a small percentage of public knowledge and understanding of the world in general, and environmental sustainability specifically, is derived from formal education programmes (Falk, 2001). The rest is gleaned from other sources, such as media, or museums, zoos, aquaria, and other informal learning settings (Ballantyne and Packer, 2005). These settings are often visited as a familial or friendship group in pursuit of recreation or intellectual stimulation. Adults take their children to settings such as zoos, aquariums, national parks, science centres, local parks, botanical gardens, museums and nature centres, because they view the experience as worthwhile, educational, intellectually stimulating and fun (Falk, 2005; Skanavis et al, 2005). These visits often provide the opportunity for familial bonding, and a free-choice learning experience that is self-directed, voluntary and tailored to the individual’s personal needs and interests (Dierking & Griffin, 2001; Skanavis et al, 2005). Skanavis et al (2005) asserts that these experiences also often educate the individual in how to find out more about an aspect that might interest or be of value to them, as well as providing knowledge (and encouragement) to “understand their obligation as citizens” (2005, p. 323). It is these “out-of-school environmental education experiences” that frame most people’s environmental knowledge, their understandings of environmental issues and actions and their attitudes and values concerning the environment (Buza, 2010, p. 13).

Research has shown that these learning experiences contribute to the process of lifelong learning, and I would argue influence the individual’s development of an ecological and social identity. As Falk (2005) says:

> Education is a lifelong endeavour; the public learns in many places and contexts, for a diversity of reasons, throughout their lives. In addition to learning in compulsory settings like schools, people regularly utilize a wide variety of free-choice learning resources in order to discover more about their world. (Falk, 2005, p. 265)

By providing learning opportunities that enable visitors to marine environs to safely explore and discover the habitat and its resident organisms, marine educators construct an educative experience that frames the learners’ understanding and appreciation of these fragile environments.
How this understanding of experiential and free-choice learning informs the marine educators’ pedagogy and personal values is further explored in this study.

2.2.3 Personal experiences & Influences

The importance of lifelong learning is recognized by many educators (for example, Candy, 1991; Falk, 2005; Kola-Olusanya, 2005; Vaughan et al, 1993) and in international and national government documents (such as the Tbilisi Declaration; Belgrade Charter; and Bonn Declaration). As discussed previously, our personal experiences influence the way we perceive the world and the sense that we make of our perceptions.

Research has suggested that the way events and processes are interpreted is dependent upon an individual’s point of view (Fisher, 1989; Fisher 1990; Toulmin, 1980). This, in turn, is shaped by and reflects, “the entire set of cultural assumptions that are held or believed concerning ourselves and the world in which we live”, (Clark, 1988). These unquestioned cultural assumptions direct our behaviour by determining what individual’s in our culture accept as true (Kelly, 1991).

Education is seen to be a continuum or a lifelong endeavour (Falk, 2005). During the course of our lives we are influenced by a number of factors. The experiences we gain influence our sense of self, our sense of place and belonging, and contribute to shaping our ecological and social identities. Some researchers suggest that positive childhood environmental experiences are formative in the development of strong conservation ethics and values as adults, environmentally responsible behaviour (Palmer, 1993; Palmer & Suggate, 1996; Tanner, 1980), as well as their beliefs and attitudes about environmental education (Shuman & Ham, 1997). These formative youthful experiences are referred to as Significant Life Experiences (SLE).

Significant Life Experiences (SLE)

SLE research focuses on investigating and defining the “kinds of life experiences that produce adults who are informed about and actively promote environmentally positive behaviour” (Palmer & Suggate, 1996, p. 109). The rationale and aim for this model of research is to identify the type of environmental experiences that shape environmentally responsible and active adults in order to replicate these experiences in the young of today (Tanner, 1998). As Chawla says, “if educators understood the type of experiences that motivate responsible environmental behaviour, they would be better able to foster the development of an informed and active citizenry” (Chawla, 1999, p. 15).
Tanner is emphatic in stating that it is “informed, responsible, environmental activists” that will save the world, and that “ecological integrity is maintained only by politically active citizens” (1998, p. 399). He goes on to explain that it is important to identify the significant life experiences that contributed to the formation of such environmental activists. Learning about the formative experiences of those that are not politically active environmentalists, he perceives as being of no help at all (Tanner, 1998). If we are to foster the development of informed and environmentally active citizens, according to Tanner, “(i)t is imperative that we understand how the activists (informed, responsible activists) got to be the way they are” (1998, p. 340).

As with most educational modes of thought, SLE has its critics (Dillon et al, 1999; A. Gough, 1999; N. Gough, 1999; S. Gough, 1999; Payne, 1999). According to Russell (2006, p. 404), the critiques offered by these critics included:

- methodological concerns;
- conceptions of identity and activism;
- the degree of (in)attention to theoretical underpinnings, such as ontological issues related to the meanings of experience;
- the implications of participant age, gender and class;

For example, Annette Gough (1999) argues that parallels cannot be drawn between the experiences and expectations of today’s youth with the formative experiences of those that were children decades ago. She proposes that if environmental education is to produce environmentally literate youth utilizing an SLE approach then we need to draw upon the experiences of those that have more recent encounters with these significant experiences.

Some SLE researchers have attempted to identify which life experiences lead to environmental sensitivity (Peterson, 1982; Sward, 1999), which (as stated above) is considered to be a predictor of environmentally responsible behaviour (Marcinkowski, 1987; Sivek & Hungerford, 1989/90). These studies indicate that: youthful outdoor experiences in natural settings; formal educational experiences; role models (that is family, friends, teachers, and so on); books; involvement in environmental organizations; and negative experiences with environmental degradation, or loss of a much loved natural environment or place; proved to be the most commonly cited life experiences.

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5 The issue of Environmental Education Research devoted to reporting and exploring the field of SLE (Volume 5(2), 1999), was rapidly followed by a special issue that offered critiques on a variety of issues pertaining to the SLE movement (EER, Volume 5(4), 1999).
that influenced the development of environmental sensitivity in adults (Hsu, 2009; Peterson, 1982; Sward, 1999). The question, however, is still not resolved and there is a need to interview marine educators to understand how (or if) their personal childhood experiences have framed their environmental sensitivity and influenced their pedagogical and epistemological understandings.

2.3 Community Education

The public have long been identified as a major target audience for environmental education. For example, the Belgrade Charter (UNESCO, 1975) declares that the general public is the principal audience of environmental education, which includes both the formal and non-formal education sectors.

Community education is a concept that stresses an expanded role for public education and provides a dynamic approach to individual and community improvement (Decker, 1980). In the past producing a brochure, putting up a display or talking to a school group or senior citizens club would have been thought of as constituting the limits of community education and community involvement in environmental action. Today, however, people are increasingly demanding to be involved in the decision making processes, so it is important for government organisations and the public to develop mutual understandings particularly through consultation (Amstein, 1969) and community consultative committees (Melbourne Water, 1992).

Individual involvement in community groups often comes about through participating in educational programs, and "(g)etting the "movers" behind the community education programs is a good method for enlisting members"⁶ (Russell, 1977, p. 8).

Inherent in the community education philosophy is the belief that each community education program should reflect the needs of its particular community. This includes producing essential modifications as times and problems change and thereby allowing the opportunity for people to work together to achieve community, and self, improvement (Decker, 1980).

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⁶ Author's own use of italics.
The concept of community education, therefore, has broader goals and objectives than the traditional schools model. It also serves a broader clientele base. Frank (1979, p. 9) recognises that

... learning takes place from birth to death. Learning does not begin at age 5 in September and end at age 18 in June. Learning is an integrated function of man’s basic survival. We need to continue to learn. We need to continue to be educated.

As discussed above, environmental education is important to promote awareness, knowledge, attitudes, skills and levels of participation. The emphasis in community-based environmental education is placed upon the necessity to cater for all ages and social groups from a variety of societies. To this end, community-based (or non-formal) environmental education:

theoretically at least, is more capable of responding to local environmental issues which have more social meaning and usefulness to the community and is less dominated by academic requirements (Young & McElhone, 1986, p. 2).

Harrison (1980) suggests that community participation in implementing projects is beneficial to environmental planners and managers as well as educative for community members:

Participation in decision-making provides planners with much better information on peoples' wants and dislikes. It helps to avoid disastrous errors which may result if the supposed beneficiaries are not consulted. It can boost morale, increase productivity and reduce negative and destructive conflicts between managers and the managed. ... Primarily, participation is an educative process. It produces confidence in the participants especially in their ability to control circumstances instead of being controlled by them. It can also increase political stability by reducing sectional interest. Increased participation will mean a considerable measure of self help but the necessary technical skills, materials and finance have to be provided so assisted self help is required (Harrison, 1980, p.37).

Thus community-based environmental education can be of great assistance to governments and resource managers. This is probably why there are so many such programs that are obviously government inspired (and controlled), operated through non-governmental organisations (NGO’s), or a combination of both (Young & McElhone, 1986).

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7 I would also like to believe that learning is the integrated function of woman’s basic survival.

8 Although the Unesco-UNEP International Environmental Education Programme use the term 'non-formal' to differentiate between formal school-based education and the broader non-formal community education, I have chosen to use the term 'community-based' as I believe this to reflect more satisfactorily the focus on the real recipients of the educative process taking place.
Young & McElhone (1986) classify community-based environmental education into two categories: non-participatory and participatory. The non-participatory category involves programs wherein the target group members are:

merely passive receivers and would include radio and TV. broadcasts, press articles, visits to institutions such as museums, zoos, aquaria, etc., and also listening to the occasional lecture at a local club (p. 29).

The participatory category focuses on programs where the target group members taking a more active role in the project. Programs that incorporate both of these modes of environmental education, meet the criteria outlined by Young and McElhone (1986, p. 91) who claim:

it would be prudent if education administrators reflected on the essential features that characterise non-formal [or community-based] environmental education that is it should be concerned with local issues ("...think globally and act locally"), but it must involve all levels of society and, above all, it must be active and participatory.

As discussed above, learning more about the environment and establishing a connection to nature, or a ‘sense of place’, can frame and shape an individual’s environmental sensitivity. By bringing together environmental action and community education, enables the individual to take a participatory role in local environmental issues, thereby applying their knowledge and understanding of the marine environment to practical concerns. In doing so, individuals are empowered to go beyond learning and to take action by applying their knowledge to instigate change.

A number of research studies have investigated community involvement in environmental issues (for example, Andrew, 1997; Ilett, 1995; Malone, 1996; Schreuder, 1994). This research has shown that by educating local communities and involving them in decision-making and implementation of environmental policies, community ownership of both the environment and the problem ensues, and the likelihood of designing and implementing a successful management strategy increases (Dijksterhuis, 1996). According to Dijksterhuis (1996, p. 352):

where uncontrolled development and exploitation of coastal resources have become increasing problems, the application of environmental education offers a sustainable solution. Involving the community and its representatives at all levels (from grassroots to government officials) will make the strategy work through the community, rather than at it with a top-down approach.

Stapp et al (1969) recognized that individual citizens were called upon increasingly frequently to make decisions that affected their environment. This took the form of voting on community issues,
or electing representative to policy making bodies. Arnstein (1969) interpreted this call for community participation as a transfer of power:

> It is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future. It is the strategy by which the have-nots join in determining how information is shared, goals and policies are set, tax resources are allocated, programs are cooperated, and benefits like contracts and patronage are parcelled out. (p. 216)

Over the past several decades there have been a number of changes in community participation in environmental programs. This has come about as a result of a variety of factors including a retrenchment of environmental positions in the public sector and an increase in the number and involvement of concerned citizens (Crohn & Birnbaum, 2010). Partnerships between government departments and local communities have sprung up in countries around the world. Increasingly, community participation and education are becoming a key focus, and tool, for natural resource management research and policy (Thomsen, 2004; Tilbury, 2004). This is particularly the case for coastal environments where government agencies are actively seeking community involvement in marine management implementation.

As part of this, the concept of stewardship has grown in importance as an approach to environmental management. This is reflected in the change in social philosophy or ethics that has shifted the onus of protecting natural resources to the general populace.

In the marine environment, this has translated to the introduction of a collaborative management approach and the presence of community representatives on main decision making bodies (Wescott, 1998). Advocates for community involvement in marine management decisions and implementation have argued that successful implementation of these integrated and collaborative management strategies are dependent on maintaining public awareness, community involvement and commitment to coastal management. The role marine educators' play in this crucial aspect of public participation is investigated in this study.

**Stewardship**

Many environmental educators would agree with Kath Murdoch (1993) that environmental education is a process aimed not only towards the protection of the environment but also at offering rich educational opportunities. These opportunities could include the potential to establish a reconnection with the natural environment - a connection that has been lost to many through living
in large cities with little or no contact with the natural world (Howell, 1997). It is this reconnection, or at least the establishment of a link with nature, that could lead to the public stewardship of the coastal environment that both the Federal and Victorian Governments hope to establish (Wescott, 1988).

But what is meant by this stewardship, and how is it supposed to be achieved? According to the Stewardship Centre for British Columbia (SCBC):

Stewardship broadly defined is an ethic that recognizes the need to conserve and restore ecosystems for current and future generations of all species. Stewardship is not just a technique. It is a philosophy, and a commitment to act in an environmentally, socially and economically sustainable manner.

Stewardship exceeds legal obligations. It refers to a wide range of actions and activities of individuals, communities, groups and organizations acting alone or in partnership, to promote, monitor, conserve and restore ecosystems.

(SCBC, n.d.)

Some scholars have proposed that participating in environmental stewardship activities has a number of benefits to both the environment and to the participant (Drummond et al, 2009; Howell, 1997). Not only are there health benefits in the physical activity, there are also other benefits in being exposed to nature (Bentsen et al, 2009). Howell suggests spiritual benefits are also attained when she asserts that in order to re-connect with nature, an individual needs to have found a “personal environmental ethic”.

Upon experiencing or actually articulating a personal environmental aesthetic, we are better able to commit to a restored connection to the natural world, and, parenthetically, to humankind as well. Ultimately, this is the ‘sacred journey’ that can promote a more effective national environmental policy (Howell, 1997, p. xiv).

This notion of stewardship is appealing, particularly in the context of coastal conservation. To increase a person’s understanding and awareness of the world around them, in particular the natural world, is to open their eyes to a different way of seeing, one could even argue a less narrow way of seeing. After all, in our ordinary lives, how much looking do we do? To encourage someone to look beyond their immediate reality by helping them to articulate their own personal environmental aesthetic, allows them to re-construct that reality and include other experiences - experiences either forgotten or never tried. With a clearer vision and understanding of the world around, it is easier to see how the individual is connected to everything else, not only the natural
world, but humankind as well. By encouraging and enabling people to explore and discover the marine world, education programs empower people to connect to this environment. In forming these connections, people move beyond knowledge acquisition to a more aesthetic or emotional understanding of the marine ecosystem that inspires values of stewardship and care.

The achievement of stewardship is generally presumed to be through increasing community awareness and participation and through environmental education programs. Past experiences have shown us that environmental education programs have a high success rate in altering people’s attitudes and perceptions, and ultimately their behaviour patterns (Beckmann, 1991; Darlington and Black, 1996; Pfueller, et. al., 1997). Although, of course, such a programmatic sequence cannot be guaranteed (Uzzell, 1995).

How this sense of stewardship translates to the real world, and the elements that drive it, are explored by talking to key stewards of the marine environment: marine educators. By listening to their stories and analysing how their passion and commitment to this specific ecosystem evolved and is interpreted has enabled me to understand their conceptions of stewardship and the drivers of their commitment.

### 2.4 Marine Education

The coastal and marine environments are extremely valuable resources that are intricately interlinked with other parts of the Earth system and, consequently, are important to global conditions (Fortner, 2003). As these environments come under mounting ecological pressure from increased urbanisation, industrialisation and unsustainable lifestyle choices, the need for educational intervention becomes paramount. Education plays a pivotal role in drawing attention to environmental problems that threaten the marine environment and empowering an informed, aware and environmentally sensitive community.

As discussed previously, the principles and values that underpin environmental education and education for sustainability are fundamentally the same as those that underpin marine education. The ethics of learning about an environment, in the environment and for the environment holds true for the coastal/marine/oceanic ecosystem. Education is crucial to raising awareness and enabling a more informed populace to contribute to environmental management decision-making. However, the delivery of these educational concepts are more powerful, and consequently more likely to
achieve learner objectives, if learning occurs in situ, that is in the marine environment. Coastal activities that bring the learner into direct contact with marine organisms in their natural habitat have been shown to be effective in increasing learner awareness and knowledge structure, and creating (re-)connections to the marine and coastal environments (Stepath, 2005; Stepath, 2007; Stepath and Whitehouse, 2006).

Marine education has been defined as “that part of the total educational process that enables people to develop sensitivity to and a general understanding of the role of the seas in human affairs and the impact of society on the marine and aquatic environments” (Stepath, 2004, no page numbering).

The Victorian Government’s Environmental Education (EE) Policy launched in May 1998, did not refer to the coast as being of particular importance as an environmental issue for schools to be concerned about, although indirect issues were raised, for example pollution, cultural diversity, and so on. This may be because Education Victoria adopts the view that environmental education is all encompassing and ‘that everything is connected to everything’, thus all environmental problems are inter-connected.

This philosophy lacks foresight, arguably being not conducive to protecting the marine environment. Australian culture revolves around the coastal environment. We look to this ecosystem for food, recreation and many other value-related reasons. To exclude education about this intrinsically important environment could be perceived as detrimental to the future of the Australian cultural identity. Similarly, Canada relies heavily upon its marine and coastal environments for a wealth of social and economic reasons. This environment plays an important role in the Canadian sense of identity – albeit taking a different form to that of Australia.

Marine educators, however, are also directly involved in ensuring that informal education occurs, that the public is involved in decision-making and monitoring of the environment, and that all individuals who take part in their education programmes gain an awareness of government policies (and, I would argue, how to implement or influence them). Consequently, marine educators are creating change – both culturally (or socially) and environmentally: through their work they are educating for, in and about the sustainability of our marine areas.
There is little education research published on marine education (Stepath, 2007). This was evidenced by the literature review undertaken for this thesis. This review included conducting computer searches using EBSCO, Academic Search Complete, JSTOR, Environment Complete, Oceanic Abstracts, ProQuest, ScienceDirect, Scopus, Web of Knowledge and Web of Science databases in the English-language literature to identify published reports and studies examining relationships between the coastal marine environment, marine policy development and education programmes. General internet searches were also undertaken as was searching the bibliographies of papers. Articles published between 2000 and 2010 were reviewed (specifically those in peer reviewed journals). Search terms included ‘marine’, ‘coastal’, ‘ocean’, ‘environmental’, ‘education’, ‘policy’, ‘strategy’, ‘legislation’, ‘research’, ‘community’, ‘public’, ‘citizenship science’, and so on. The majority of the literature that has been generated focuses on school-based (or formal) education or school visits to marine environments (Fortner, 2003; Stepath, 2007) either virtually (such as aquaria, marine discovery centres, and similar) or directly (that is school coastal excursions).

2.5 Consolidating the research questions

According to A National Review of Environmental Education and its Contribution to Sustainability in Australia (Tilbury et al, 2005) community education can be applied to the marine environment and its related educational programmes:

Environmental Education programs targeted at the community vary considerably. Some have a focus on providing environmental information and raising awareness, others involve consultation or the community taking action. Recently Environmental Education programs have become broader and more targeted at community change. (p. 1).

As noted previously, although there has been extensive literature published regarding environmental education, there are few studies or scholarly articles related to marine education in the public arena, and even fewer that focus on the role of educators in policy. This is particularly true for research on the relationship between the role of marine educators, the community as stewards of the marine environment and government environmental policy. This thesis seeks to address this gap by addressing the following research questions:
1. **What drives the marine educators’ practice and where does this come from?**

This literature review has shown that the marine educators are a crucial component in educating the public and enabling community participation in environmental actions and decisions. The manner in which the marine educators construct educative experiences for community members is informed by their personal values and understandings. By providing marine learning experiences that are based on elements of exploration and discovery, curiosity and appreciation these educators frame the learners' understanding and value of these fragile environments.

Much of the findings of the literature published around place-based education and experiential and free-choice learning indicates that these approaches are extremely powerful in (re)connecting an individual to the natural environment. Over time, I became fascinated in exploring how these understandings and approaches informed and underpinned marine educators’ personal pedagogy and epistemology and their practice.

Reflecting on the literature (and my own experiences), I became intrigued by how significant life experiences may inform or influence the values and ethics we hold later in life. Given there is ongoing debate regarding the role and nature of significant life experiences, there is a need to interview marine educators to understand how (or if) their personal childhood experiences have framed their environmental sensitivity. By listening to these educators’ stories I can determine what informs the marine educators’ personal understandings, what drives their public practice, and where this passion and commitment to the marine environment originated.

2. **What is the relationship between marine educators, the community, education and government policy?**

The *World Conservation Strategy* (IUCN, 1980) triggered the development of national and local conservation strategies around the world, including in Canada and Australia. The aim of these documents was to provide a focussed approach to resource conservation and to provide guidance on acting on these strategies. The conservation strategies in both Australia and Canada outlined priority concerns and requirements for action including management of the marine environment and public participation in decision making and education. This recognition of the need to educate the public and to involve them in conservation and sustainable development reflects the shift in governmental attitude that has coalesced into calling for community involvement in policy decision-making and management.
There are a variety of ways that the community can be involved in coastal management, these range from non-participation, through to tokenism (where the public are informed about issues and the management resolutions, consulted or placated), and finally to empowerment where the community have control in the decision making process. Hale (1996), informed by Arnstein’s ‘ladder of participation’ (1969), summarized these levels and applied them to the marine and coastal environment context. He found that the levels of public participation could be categorised in the following ways:

1) Non-participation;
2) Participation in planning through information supply and awareness, consultation and incorporation of selective concessions;
3) Collaborative management including partnerships;
4) Delegated authority from a higher level of government to a lower one;
5) Community control. (Hale, 1996, p. 102)

Consequently, collaborative and integrated management approaches, that include public involvement in a partnership relationship with the land management agencies and the presence of community representation on main decision making bodies, have been endorsed and adopted in many countries (including Australia) (Wescott 1998). Advocates for community involvement in marine management decisions and implementation have argued that the successful implementation of these collaborative management strategies is dependent on maintaining public awareness, community involvement and commitment to coastal management. The role marine educators’ play in this crucial aspect of public participation is investigated in this study.

From reviewing the history of environmental education, it is clear that there was an understanding that educational programs need to be designed and implemented for policymakers, the general public, environmental decision makers and land managers in order to bring about societal change in attitudes and actions regarding the environment. The educators are a critical lynchpin in the relationship between education, the policy makers and land managers, and the community.

Understanding the nature of the role that the marine educators play in this relationship, and how this role is shaped, is fundamental to this research. This research is interested in the marine educators’ experiences of interpreting policy for the community and (to an extent) influencing the
process of policy making. Consequently, I explore their position as change agents for determining how the marine environment is viewed and acted upon.

In addition, by reviewing the literature relevant to marine education, a contextual framework can be constructed that enables the marine educators, their actions and the effect these actions have on both community education and government policy, to be considered in context.

3. **What can we learn about marine education from the marine educators?**

Education is becoming increasingly recognised as an important element of informing and involving the community in stewardship or adopting pro-environmental behaviours and marine educators are directly involved in this process. Much can be learnt from their personal experiences as experts in the field of marine education, as community educators, and as environmentalists. Interviewing a group of marine educators will enable me to gain an understanding of the roles of stewardship, education and pro-environmental values in effectively involving the public in actively caring for the marine environment.

There is very little education research published in relation to the field of marine education and even less on the roles of marine educators and the relationships they have with both community and government. Accordingly, there needs to be a closer focus on what marine educators do in informing policy and in working with people in its implementation. Consequently, the aim of this research is to expand the body of knowledge in the areas of marine education and policy development and implementation.

The remainder of this thesis is devoted to investigating and addressing these research questions.

### 2.6 Chapter Summary

This literature review supports the assertion that this study represents an original contribution to marine education research, in exploring marine educators’ personal commitment and environmental values, how these underpin their pedagogy, and how (and by what) both their personal environmental ethics and their public practice are informed. There is an apparent lack of research conducted in this area within the coastal environment, and a lack of research into the role of educators in linking government policy, environmental action and environmental education more
broadly. This study investigates both these components in responding to the research questions outlined above.

In the previous chapter I explained the problem being investigated in this research and the rationale for undertaking this study. In the next chapter I describe the methods and methodologies I have adopted in this research.
Chapter 3

**Compasses, Astrolabes, Stars and Navigation:**

*The Methods and Methodology*

No one ever sailed past us without staying to hear the enchanting sweetness of our song – and he who listens will go on his way not only charmed, but wiser…

(Homer, circa 800-600 BCE)

**Introduction**

The last chapter reflected on the literature that pertains to community environmental education and the coast and how both relate to my study. This chapter aims to build on this basis by examining the methods and methodologies that I have employed in the course of this study and the rationale for adopting them.

A researcher needs to consider the purpose of the study, the research question and the participants in order to determine the type(s) of research methods utilised (Shulman, 1981; Yates, 1992). Methods are chosen on the basis of how appropriate they are to the objectives of the study.

As discussed in the literature review chapter, the aim of this research is to expand the body of knowledge in the areas of marine education and policy development and implementation. In particular, it focuses on the educative relationships between marine educators working in this field, community groups and government agencies. It also focuses on what drives the marine educators’ environmental and pedagogical commitments and practices.

These research foci are encapsulated in the three research questions introduced in Chapter 1:

1. What drives the marine educators’ practice and where does this come from?
2. What is the relationship between marine educators, the community, education and government policy?

3. What can we learn about marine education from the marine educators?

To pursue these questions, the research methods chosen were multi-faceted. The first component of the research incorporated an analysis of government policies relating to marine environments in British Columbia, Canada and Victoria, Australia with a view to determining the influence these documents have on the educators and the context within which they work.

The second, and major, aspect of the study involved interviewing eight experts from various sectors within the coastal and/or marine education field(s) in either Australia or Canada. Utilizing a methodology informed by narrative inquiry, their self-perceived roles and the influences that underpin their design and delivery of marine education programs were explored.

The third element in the study was to draw on the marine educators as informants in order to better understand the nature of marine education and the issues surrounding the field.

The central part of the thesis lies with the interrogation of marine educators’ stories and the meaning they give them, as a framework for understanding the relationship between the educators and policy implementation, education programs and community, and what drives the marine educators’ practice.

### 3.1 Selecting a methodology

Higgs (2001) distinguishes between four central research paradigms: the empirico-analytical; the interpretive; the critical; and the creative arts paradigm. A paradigm is a worldview; a way of seeing the world based on a set of beliefs, conventions and assumptions. In terms of research, it defines what meaningful questions can be asked, how they can be answered, and what signifies an adequate response to any question by determining what counts as knowledge, and how it can be authentically produced. Higgs’ paradigm approach is similar to Crotty’s (1998) insofar as different components of the research are constructed upon each other. In this research I will be working within an interpretive paradigm in Higgs’ (2001) sense.

The interpretive paradigm encompasses a broad array of methodologies that construct, manage and sustain social reality. These include phenomenology, ethnography, hermeneutics, artistic, case study, humanistic, action research, participatory, narrative, life history, feminist, post-positivist, subjective and emancipatory.
In this chapter I justify the use of case study, and narrative inquiry, as the interpretive methodologies (Crotty, 1998) or research approaches (Higgs 2001) I will use in keeping with an interpretive paradigm (Higgs, 2001).

3.1.1 Justifying an interpretive paradigm for this research

Much argument has historically occurred regarding the benefits and disadvantages of the various alternative research paradigms.

It was clear from the outset that a quantitative positivist approach was not suitable for this study. A positivist approach emphasises a dispassionate and controlled mode of surveillance that demands that the researcher is independent of the object of observation (Connole, 1993). Of course, the question then arises is how, when dealing with human subjects, can a researcher be truly objective? This very objectivity decontextualizes the person’s story, and takes away the sense of the individual's reality. This is instead replaced with a select, and somewhat biased, hegemonic reality. Such an approach would not provide the rich personal data I sought in trying to understand, for example, what roles marine educators play in community education and what informs their practice.

In searching for a black and white answer to a carefully phrased question, too much is left unexplored. To then attempt to take the findings from such a study and apply them to an entire population as representative, can consciously and perhaps unjustly ignore the diverse array of voices in a study group. Certainly in the study I have undertaken, it would be undesirable to attempt to talk of a representative group of marine educators in every aspect. The interviewees have their own stories and their own understandings of their place in the world. This will be placed strongly within a context when attempting to generalize the study findings. It is for these reasons that similar cultures, marine environments (that is, either side of the Pacific Ocean) and legal systems were considered when deciding on potential study sites. The contexts chosen, Australia and Canada, are sufficiently similar to allow a meaningful comparison within the same broad cultural framework.

Although the quantitative positivist approach does have advantages in more objective science-based research (Johnson, 2000; Wilson, 1985), it can inhibit a thorough understanding and
examination of the research topic in a social science research context. Nor is there one true value/answer that research can establish. As Rosenthal & Rosnow (Rosenthal & Rosnow, 1984) recognise

... human reality is not that simple. There are many aspects which are not at all "pure" or "absolute", but are instead intellectual abstractions that gradually attain some form or shape as ideas and then change (1984, p. 75).

Fien (1992) and Robottom and Hart (1993a) are of the opinion that a science research methodology that springs from a positivist epistemology neither values nor supports critical consciousness and, as Malone (1996) recognises, is therefore "... unable to respond to the critical and socially transformative orientation of environmental education" (Malone, 1996, p. 114).

Habermas (1978) makes a different point by identifying that the frame of reference within which we objectify the researched "... is bought at the cost of neutralising broadly complex, biographically determined and historically shaped sensibility" (p.142). Thus, when the research participants' experiences fail to fit the empirical framework, positivists find connections that explain the difference by scientistic laws (Habermas, 1978, p. 143). This means the research participant's own story is never offered as a reality as nothing is allowed to remain unexplained.

Similar to the positivist approach, the interpretive approach seeks validation or 'truth' in research. The major difference is that "the interpretive approach emphasises social interaction as the basis for knowledge" (Connole, Smith & Wiseman, 1993, p. 12). Research, in this case, is subjective and refers to an 'inner' world of experiences. This subjectivity is constructed by a mutual negotiation and understanding by both subject and researcher. Although the researcher seeks 'truth' it is sought through understanding the subjective worlds of others and the meanings that individuals give to their environments and the meanings that lie behind social action (Coe, 1991; Mousley, 1996; Terre Blanche and Durrheim, 1999; Wiseman, 1978).

Theories that arise from empirical or positivist research often lay claim to authority while, at the same time, offering an incomplete picture by generalising from only one story, (Cherryholmes, 1988). This then places the researcher in the position of deciding which story to analyse and explain, ignoring the innate subjectivity in this process. On further examination, it becomes obvious that "...what is conventionally called an objective social science stance is actually a particular
standpoint” (Reinharz, 1992, p. 228). Kreiger and Marcus undertook experiments that involved direct subjectivity and determined that "...the more "objective" the author, the more distorted the product" (Reinharz, 1992, p.229). Thus it is that positivist research in a social science context may not be a reflection of unbiased objectivity at all but an insidious exploration and telling of a single reality. In this instance, objectivity really can be described as an illusion.

As Terre Blanche and Durrheim (1999, p. 8) so clearly describe, positivism may therefore suit those who are after objective facts, while interpretive research is for those who care about the meanings people attach to such facts. Given that this study is predominantly concerned with the meanings marine educators give to their environment and their relationship to it, and to policy implementation, it is, therefore, appropriate that the research sits within a broad interpretive framework.

Wiseman (1990) argues that the term interpretive is used when a researcher is trying to answer questions by producing an interpretation which is informed by the subject's own interpretation of their actions. Thomas Schwandt (2000) expands on this by saying:

Thus, to understand a particular social action... the inquirer must grasp the meanings that constitute that action. To say that human action is meaningful is to claim either that it has a certain intentional content that indicates the kind of action it is and/or that what an action means can be grasped only in terms of the system of meanings to which it belongs (2000, p.191).

Interpretive research, therefore, focuses on the meaning individuals give to their world. Since the behaviour of humans predominantly consists of actions that are only meaningful to those who perform them and are only intelligible to others through reference to whatever meaning the actor gives to the action, an observer must take this into consideration. Interpretation of an act can only be made in reference to the actor's motives, intentions or purposes in performing the action (Carr and Kemmis, 1986).

Actions, unlike the behaviour of most objects, always embody the interpretations of the actor, and for this reason can only be understood by grasping the meanings that the actor assigns to them. A task of

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‘interpretive’ social science is to discover these meanings and so make action intelligible (Carr and Kemmis, 1986, p. 88).

It is also necessary for the observer to understand (and interpret this understanding to others) the social context within which the actor’s intentions make sense. Carr and Kemmis (1986) explore this by explaining that identifying the conscious intentions of an individual’s actions does not necessarily make that action meaningful. It is also necessary to identify the social understanding of the context in which the action is made to give the action meaning.

This social character of actions implies that actions arise from the networks of meanings that are given to individuals by their past history and present social order and which structure their interpretation of ‘reality’ in a certain way. … For this reason, another task of an ‘interpretive’ social science is to uncover the set of social rules which give point to a certain kind of social activity and so reveal the structure of intelligibility which explains why any actions being observed make sense (Carr and Kemmis, 1986, p.89).

So it is the task of the social science researcher to identify the social action in reference to the subjective motivations, intentions and meanings that inform those actions. Kelly (2005) supports this view and goes on to explain that the meanings that can be attributed to an action are indicative of the actor’s historical and current social situation and experiences.

The network of meanings from which social actions arise are a reflection of an actor’s history and present social situation: how an individual ‘sees things’ is conditioned by levels of education, access to material resources, childhood experiences etc. The ways in which individuals act socially then are in some ways predetermined by their past social experiences. Another task of interpretive social science then is to uncover the ways in which individuals acquire an understanding of the social rules that through the imbuing of behaviour with meaning allow the individual to act socially. (Kelly, 2005, p. 25)

Social organization is therefore evident in “the going concerns referenced by participants, to which they hold their talk and interaction accountable” (Gubrium and Holstein, 2000, p. 501).

Garrick (1999) elucidates further by presenting the principle or belief that the meaning ascribed to by a person will be the basis on which they make decisions and act.

The interpretive model stresses the liberal value of respect for the person. A central tenet of this domain is the belief that individuals are not merely passive vehicles in social, political and historical affairs, but have certain inner capabilities which can allow for individual judgments, perceptions and decision-making – autonomy. Possession of such capabilities, it is assumed, can contribute to, influence or even change events – agency. (Garrick, 1999, p.149)
So it is that methodologies situated in an interpretive approach enable the participant’s voice to be heard by allowing individuals to attribute their own meaning to their own context(s). As Garrick puts it:

An interpretative approach seeks to explain how people attribute meaning to their circumstances, and how they develop and make use of rules that govern their behaviour (1999, p. 150).

There are many supporters and champions of the interpretive approach (for example, Candy, 1991; Cantrell, 1993; Van Manen, 1990) “who argue that a preferred method of research for social science involves, description, interpretation, self-reflection and critical analysis” (Garrick, 1999, p. 150).

However, like everything, interpretive approaches to research has its critics, some even from within the field itself, although the majority from critical or post-modernist researchers. Blaikie (1993) identified the critiques of interpretivism where they overlapped at a number of points. Amongst these views were that “interpretivism does not allow for the causal factors of types of actions to be investigated”, and that interpretivists fail “to analyse the social structures (historical and otherwise) with which the actors’ interact in order to give the researcher’s perspective, rather than simply accepting the actors’ views and beliefs” (Blaikie, 1993, pp. 110-111).

These criticisms, rather than being fatal, I view as warnings, attention to which can sharpen the validity of the methods and analysis. In undertaking a document analysis exploring context, and interviewing a number of educators, the social setting and shared meanings are explored. I have interviewed a number of different marine educators; used multi-method techniques to produce the data; brought my own perspective to bear on the research data; and, both during and after the interviews, I have asked the participants to take time to reflect.

In the research I have undertaken I have chosen to utilize methods that undeniably fit within the interpretive research methodology. I have chosen this approach to produce and use data (or stories) to interpret the phenomena and realities of marine educators in two similar, yet contrasting, cultures and to answer the three research questions.
3.1.2 Validating the research

The use of document analysis and multiple interviews, allows an enrichment of understandings developed by the author regarding the research questions. This form of ‘triangulation’ cannot (and does not aim to) situate an observer-independent reality. However, in using it I do hope to demonstrate methodological rigour and offer a more secure understanding of aspects of the informants’ stories.

As Denzin and Lincoln point out:

"(t)he use of multiple methods, or triangulation, reflects an attempt to secure an in-depth understanding of the phenomenon in question. Objective reality can never be captured. Triangulation is not a tool or a strategy of validation, but an alternative to validation. (Denzin and Lincoln, 1994, p. 2)."

The merit and credibility of an interpretive inquiry design can be increased by using triangulation. Triangulation involves drawing upon different methods, perspectives and sources of data to heighten the robustness of research. I aimed to assure the rigor, worth and trustworthiness of my research through the use of what has been described as data triangulation (using different data sources), theory triangulation (using different perspectives to interpret data), and methodological triangulation (using multiple methods to gather data) (Cantrell, 1993, p. 92; Stake, 1995). Each of these is outlined below:

- Data triangulation – I used interviews with the marine educators and other key people from relevant organisations, governmental documents (such as policies, legislation, and strategies), and artefacts (such as websites pertaining to the programs designed and run by the participants; social networking sites and professional electronic forums such as ‘Scuttlebutt’; and publications by the participants). By utilizing a variety of sources to produce the data I have been able to cross-check policies, educational programs and the participant’s professional contributions to the field, in order to build a rich description of each of the marine educators and to construct an understanding of the context in which they work.

- Theory triangulation – through discussions with experts in the field of environmental education (that is, my supervisors, other academics, and the literature) I was able to gain different perspectives in interpreting the data. This has resulted in a reflection on the themes and approaches to the research analysis. For example, the theory of aesthetic understanding provided a framework for making sense of my data in Chapters 5, 6 and 7.
Methodological triangulation – By using multiple methods using interviewing, document analysis, and observation, I was able to place the marine educators’ experiences and commentaries into a policy context and a cultural setting. As an actor in the field of marine education myself, and by participating in groups dedicated to marine conservation and education, I was able to bring a broader (more critical) perspective to these stories. Interviews enabled access to the personal and constructed perspectives, and the experiences of individuals in the field. Document analysis meant that artefacts relevant to the field and governmental perspectives could be included in the analysis. My observations enabled me to appreciate the complexity of the role that marine educators perform and the intricate relationships they have with both policy and community. This multi-method approach therefore afforded the coalescence of the human experience and perspective with the documented accounts and legislative controls.

In addition, in line with Cantrell’s (1993) theories on interpretivist inquiry validation I have undertaken member checks and peer debriefing by asking others (namely the interviewees, my supervisors, and other environmental educators that agreed to pilot the questions for me) to check the accuracy and the plausibility of my interpretations of the data.

I have also drawn on Rice’s (2001) recommendations regarding ensuring the rigour of this research. As Rice points out:

> interpretations in a qualitative study can be improved by including substantial parts of, or complete, primary texts in the research report, or by making them available to other researchers. Plenty of direct quotes and complete interviews provide the reader with a clearer sense of the evidence on which the analysis is based. Making the primary text available allows other researchers to ‘inspect it and assess the adequacy with which the methods and interpretations represent the data’. (2001, p. 36).

I have, in response, included numerous direct quotes to allow the reader to draw their own interpretations if they should so choose. These quotes have been coded to show where they occur in the interview transcripts.

So it is that “interpretivists accept the inseparable bond between values and facts and attempt to understand the reality, especially the behaviour of people, within a social context” (Cantrell, 1993, p. 84). In my research study I aimed to listen to marine educators to hear their understandings of themselves, their educational programs, of their position within the larger arena, their links to and influences on (and by) government protocols; basically the stories they have formulated to give meaning to their construction of reality. As discussed above, this research sits comfortably within
an interpretive approach. I have therefore taken an interpretive approach to qualitative research as my methodological framework.

3.1.3 Methodologies

Two methodologies have been selected for this research: case study and narrative inquiry. These are outlined below.

Case Study

Case study is a very common design methodology that is used in interpretive as well as other research.

According to Yin (1984, p. 13) “…case study is the preferred strategy when ‘how or why’ questions are being posed, when the investigator has little control over events, and when the focus is on the contemporary phenomenon within some real life contexts”. Hence the choice to undertake case study methodology is greatly influenced by the situation being investigated and the kind of questions being asked.

According to Stake (1995, p. 4) "(t)he first criterion [when selecting a case study] should be to maximise what we can learn". This of course means, given the chosen purposes, which are the cases that are most appropriate to lead to understandings, and which cases are easily accessible and have informants amenable to the inquiry.

A great deal of the criteria of case study can be applied here. For example, case studies have clear boundaries in terms of the questions asked, the data sources used and the setting and person(s) involved. My study is bounded by the three research questions I have attempted to address, the documentation (that is, legislation, and so on) and other data sources that I have accessed, the marine educators that I have interviewed and the two countries that provide the context in which the marine educators work.

I also argue that I have investigated the particular case (that is, key marine educators in Victoria, Australia, and in British Columbia, Canada) in some depth and over the course of over a decade. According to the theory Stake (1995) espouses, this has given me a particular knowledge of marine education in the context of these two States/Provinces.
As Stake explains:

The real business of case study is particularization, not generalization. We take a particular case and come to know it well, not primarily as to how it is different from others but what it is, what it does. There is emphasis on uniqueness, and that implies knowledge of others that the case is different from, but the first emphasis is on understanding the case itself. (1995, p.8).

In this way the study designs should aim the inquiry:

… toward understanding of what is important about that case within its own world, which is seldom the same as the worlds of researchers and theorists. Those designs develop what is perceived to be the case’s own issues, contexts, and interpretations, its thick description. (Stake, 2000, p. 439).

By investigating the legislation and strategies pertaining to the coastal and marine education field, interviewing some of the key participants, and examining a sample of the educational programs, I have provided the thick description that Stake talks about.

In my study I have adopted what Stake (1995; 2000) refers to as collective case study, in so far as the research studies separate marine educators within broadly the same context of legislation and community education. The case is, therefore, the collection of marine educators working in policy-community-education context. The fact that these educators are from two countries allows the variation in context to be investigated.

As Vaughan (in press) suggests:

... illustration as to how a phenomenon occurs in the circumstances of several exemplars can provide valuable and trustworthy knowledge (Vaughan, in press as in Stake, 2000, p. 444)

Stake (1995) endorses the use of member checking as a way of triangulating the researcher’s interpretations and observations.

In a process called “member checking,” the actor is requested to examine rough drafts of writing where the actions or words of the actor are featured, sometimes when first written up but usually when no further data will be collected from him or her. The actor is asked to review the material for accuracy and palatability. The actor may be encouraged to provide alternative language or interpretation but is not promised that that version will appear in the final report. Regularly, some of that feedback is worthy of inclusion. (Stake 1995, p. 115).

Following Stake’s suggestion, I asked the interviewees to approve the interview transcripts and to amend or delete wherever they felt appropriate. All of the participants returned their amended
transcripts, some with comments, and some without. One interviewee initially wanted to totally re-write her responses as she felt that she had been vague and distracted. (This was perhaps not surprising given that the interview took place in her backyard with her young son running around and proving a delightful, yet constant, distraction).

The study participants were asked to review their interview transcript and address some further questions that evolved from the data analysis. This proved to be a lengthy process as it took up to 12 months for some of the interviewees to have the opportunity to review the transcripts. In addition, all of the interviewees were asked if they wanted to review the material written about them and the interview for accuracy and palatability, however, none took up the offer.

However, by asking the participants to approve the transcripts and by offering them the opportunity to review the accounts written about them, I have attempted to follow Stake’s process of member checking, as a way of validating the data.

The ethical issues of influence and anonymity have been raised in regards to case study. Case studies have been described (Simons, 1989) as having a political nature as they are often intended to influence policy-makers. Hence, individuals or organizations may stand to benefit or lose depending on the way the knowledge is used. In addition, anonymity is sometimes tenuous, as identification is invariably possible at least for other participants involved in the study. The researcher, therefore, has a responsibility to provide participants with some control over the information that they supply. Through a process of negotiation, the researcher can balance the rights of the individual participants to privacy with the public's right to know. Accordingly, I have sought the use of the participants’ real names and will discuss this further, below.

Literature also suggests providing testimonies to participants in the contexts within which they will appear and allowing them the opportunity to add to or clarify their comments (Komesaroff, 1995). However, participants need also to be made aware that the researcher is not bound to change a report with which they disagree. As Simons (1989, p.125) expounds:

(t)his procedure establishes the boundaries of the negotiation process. It is one that allows all individuals, evaluators included, to contribute to the fairness, accuracy and validity of the report. If judgments on these criteria are in dispute, individuals still have the right to report disagreements and to make additions. Such a procedure also ensures that negotiation does not lead to a false consensus on issues or emasculated reports.
In addition, a case researcher usually enters a scene knowing in advance that certain relationships, incidents or problems may be important, only to discover that as the research progresses, these perceived “facts” had little real significance (Stake, 2000). It is only as the case’s story unfolds that we can make our interpretations with any degree of authenticity.

As Stake points out:

Even when empathic and respectful of each person’s realities, the researcher decides what the case’s own story is, or at least what will be included in the report. More will be pursued than was volunteered. Less will be reported than was learned. Even though the competent researcher will be guided by what the case somehow indicates is most important, even though patrons, other researchers, and those researched will advise, what is necessary for an understanding of the case will be decided by the researcher. What results may be the case’s own story, but the report will be the researcher’s dressing of the case’s own story. This is not to dismiss the aim of finding the story that best represents the case but to remind the reader that, usually, the researcher ultimately decides criteria of representation. (Stake, 1995, p.441).

The exploration of the cases in my study took place over a period of time which allowed for growth in understanding for both interviewer and interviewees. This growth is reflected in the analysis.

**Narrative Inquiry**

Within the interpretive tradition there are many methodologies. In my particular case, I am interviewing renowned marine educators about their practice and views, as well as their history of action and interest. As such, I have chosen a narrative methodology to carry the interview design and analysis.

This choice was made for a couple of reasons. First, marine educators are “story people” in so far as they use narrative to make meaningful connections between their audience and the world around them. Secondly, I have a strong bias for this form of data production as I, too, am a “story person” and use stories to teach and give meaning to the environment of which I am a part.

Although narrative inquiry has been recognized as a methodology for a long time, this investigative process has enjoyed a considerable increase in interest during recent times, particularly with regard to studies of educational research (Connelly and Clandinin, 1990; Hart, 2002; McEwan and Egan, 1995; Polkinghorne, 1995). According to Connelly and Clandinen:
The main claim for the use of narrative in educational research is that humans are storytelling organisms who, individually and socially, lead storied lives. The study of narrative, therefore, is the study of the ways humans experience the world. (Connelly and Clandinen, 1990, p. 2).

The term narrative has been defined in many different ways by a variety of qualitative researchers, dependent on the subject of the study, how it is that the study will occur, and what the purpose of the study is. Some claim there is no rigid criteria for what constitutes a story (Robinson and Hawpe, 1986, p. 112), while others use a broad definition that includes almost everything (Riessman, 1993), and yet others focus on one aspect of narrative, thereby limiting the process (Labov and Waletzky, 1997).

Connelly and Clandinen (1990) describe narrative as both phenomenon and method. This means that they see the term narrative as describing the “structured quality of the experience to be studied”, as well as naming “the patterns of inquiry for its study” (p. 2).

To preserve this distinction we use the reasonably well-established device of calling the phenomenon “story” and the inquiry “narrative”. Thus, we say that people by nature lead storied lives and tell stories of those lives, whereas narrative researchers describe such lives, collect and tell stories of them, and write narratives of experience. (Connelly and Clandinen, 1990, p. 2).

Polkinghorne (1995) uses the term narrative “to refer specifically to texts that are thematically organized by plots” (p.5). While recognizing that the term refers to any prosaic discourse, that is, “any text that consists of complete sentences linked into a coherent and integrated statement” (p.6), in his article, Polkinghorne (1995) emphasizes the use of narrative as a referent to “a specific kind of prose text (the story) and to the particular kind of configuration that generates a story (emplotment)” (p. 5).

Researchers like Polkinghorne (1988; 1995) and Connelly and Clandinin (1990) have focused on the story as a particular type of discourse, not simply any prosaic discourse.

Stories express a kind of knowledge that uniquely describes human experience in which actions and happenings contribute positively and negatively to attaining goals and fulfilling purposes. (Polkinghome, 1995, p. 8)

It has been suggested that people use stories to make sense of the world and to represent themselves, both to themselves and to other people. Lawler (2002) argues that these stories circulate to form a cultural basis from which people draw in order to produce their own stories:
... not only do people often produce 'storied' accounts of themselves and their relation to the social world (within and outside of the research setting), but also the social world is itself 'storied'. That is, stories circulate culturally, providing a means of making sense of that world, and also providing the materials with which people construct personal narratives as a means of constructing personal identities. (Lawler, 2002, p. 230).

To apply this argument to a real world situation, as discussed in a previous section, Australians cultural sense of identity – and therefore a large proportion of the population’s individual sense of identity – stems from the story or idea that we are a coastal nation. The coastal and marine environment is unique as most Australians lay claim to an affinity with it. The image of a sun-kissed Aussie playing on the beach is strong in our collective psyche of being a coastal nation.

The idea that we are a land of tanned Aussies that have strong links and connections to the marine and coastal environments is prevalent (witness the concept of ‘sea change’ and its inclusion as now commonplace vocabulary in the Australian vernacular). Even those who live nowhere near the coast see themselves as coastal people (for example, even Alice Springs has an active yacht club). Canadians have less of a coastal image although those in the coastal provinces and territories still align themselves with aspects of the marine environment that have a strong cultural component. For example, Orca Whales and Salmon are intrinsically Canadian and many British Columbian inhabitants see this connection. Yet many Australians (and Canadians) have never gone below the water line nor understand the delicate balance that exists in the coastal environment.

The reality (if there is such a thing) is that these perceived connections or links are exceedingly tenuous. Arguably, what I am investigating in this research is the extent to which these marine educators are establishing or promoting these cultural stories.

As discussed above, I have used narrative inquiry to produce and analyse the data for my research study. I have also taken Polkinghorne’s (1995) paradigmatic analysis of narrative approach to narrative inquiry as a key referent for my research.

Polkinghorne (1995) describes two different kinds of narrative inquiry: analysis of narratives and narrative analysis:

In the first type, analysis of narratives, researchers collect stories as data and analyse them with paradigmatic processes. The paradigmatic analysis results in descriptions of themes that hold across the stories or in taxonomies of types of stories, characters, or settings. In the second type, narrative analysis, researchers
collect descriptions of events and happenings and synthesize or configure them by means of a plot into a story or stories (for example, a history, case study, or biographic episode). Thus, analysis of narratives moves from stories to common elements, and narrative analysis moves from elements to stories. (Polkinghorne, 1995, p. 12)

In interviewing the marine educators, I have produced diachronic data that describes when events occurred and the perceived effect that these happenings had on subsequent events. This data was then examined to identify instances of general notions or concepts. As Polkinghorne describes, I was seeking “to locate common themes or conceptual manifestations among the stories collected as data” (1995, p. 13). By interviewing eight marine educators, I had collected a number of stories that I then inspected to discover the notions or themes that appeared across these stories.

Polkinghorne describes two possible types of paradigmatic search that can be used to discover themes:

(a) one in which the concepts are derived from previous theory or logical possibilities and are applied to the data to determine whether instances of these concepts are to be found; and (b) one in which concepts are inductively derived from the data. (1995, p. 13)

My initial thought was to use preconceived concepts and apply these to the data; after all I knew what research questions I wanted to address. However, what I discovered was that the concepts or stories grew out of the data as I analysed it. A few slight changes were made (more in the refinement of the concepts than changing them altogether) when I sought validation by discussing these concepts with my supervisors.

As Polkinghorne puts it:

Inductive analysis includes the recursive movement from noted similar instances in the data to researcher-proposed categorical and conceptual definitions. Through these recursions, the proposed definitions are altered until the reach a “best fit” ordering of the data as a collection of particular instances of the derived categories” (1995, p. 13)

Interestingly, all of the interviewees found it difficult to give short answers to the questions I asked during the interview. They easily answered questions that asked for a long story, yet were hard pressed to answer categorical questions that really only allowed for a short response, and a response that could be measured. My belief is that this was because these educators understand
their life (or reality) in stories. This should not be a surprise if one realizes that the very general processes that we wish to understand are embedded in these people’s lives (Chase, 1995).

Narrative analysis aims to understand the way in which general social processes are interpreted through their place in the narrative. (Liamputtong and Ezzy, 2005, p. 127).

One of the recognized issues of narrative inquiry is the complex and taxing demands placed on interviewers in the generation of the interviewee’s stories (Young and Tardif, 1992). Yet these stories should not be limited if the voice of the participant is to be heard.

**Aesthetic Understanding**

As I will describe in the analysis in Chapter 6, in attempting to make sense of the marine educators’ stories, I was drawn to the idea of capturing the way they saw themselves, particularly given the intense nature of their belief and value systems concerning the marine environment. Conversations with supervisors and colleagues led me to explore the literature surrounding transformative learning and aesthetic experience and understanding. In doing so, it quickly became very clear to me that the interviewees’ complex and rich connection and appreciation could be meaningfully understood using a framework of aesthetic understanding to provide an explanation of the processes inherent in developing such a potent relationship.

As the research literature shows (Darby, 2011; Girod, Rau and Schepige, 2003; Girod and Wong, 2002) it is a human attribute to seek connections and to use these connections to help us make sense of the world. To frame this understanding, an individual will form connections to their surrounding environment at many different levels: cognitively, emotionally, spiritually and physically. Girod and Wong (2002) argue that educators play an important role in influencing and empowering an individual’s learning and thereby their understanding of the world. By enabling the learner to experience the world (that is, to act, think and feel within it), the educator provides an opportunity for the individual to construct a view of the world that is ‘whole’, in that it is formulated and based upon personal and lived experiences.

Parallels between the fields of Arts and Science have been drawn by some researchers by exploring the role that aesthetics, passion and creativity play in the lives and understandings of scientists (Girod et al., 2003; Girod and Wong, 2002) and on science education and learning (Darby, 2009; Girod et al., 2003; Jakobson & Wickman, 2007; Pugh & Girod, 2010). By adopting a
pedagogy informed by aesthetics to teach science, educators enable the opportunity for a deep and transformative experience (an ‘aesthetic experience’) to occur. This experience invites the development of an understanding that combines a deep awareness and appreciation for the subject being experienced with theoretical knowledge. In doing so, a more ‘aesthetic’ way of knowing the world is constructed by the learner, causing a transformation in the way they perceive and interact with and within it. This transformative experience is invariably associated with the individual developing a renewed interest and excitement in the world around them.

The stories the marine educators’ told showed that they are extremely passionate, creative and committed people that think and feel deeply about the marine environment. Their stories also reflect a desire and personal drive to share this understanding of the world with others by enabling their learners to experience and connect to the marine environment in direct and deeply personal ways. The telling of these shared experiences invited exploration informed by an understanding of transformation and aesthetics. The construct of ‘aesthetic understanding’, therefore, became an important tool for reflecting on and analysing the marine educators’ narratives in this research thesis.

3.2 Multiple methods

This study uses a number of data collection methods, and so can only be described as multimethod.

Denzin and Lincoln (1994, p. 2) define qualitative research as being:

... multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical methods – case study personal experience, introspective, life story, interview, observational, historical, interactional, and visual texts – that describe routine and problematic moments and meanings in individuals’ lives.

While, according to Harding (1987, p. 2) “a research method is a technique for (or way of proceeding in) gathering evidence”. She goes on to argue

... that all evidence-gathering techniques fall into one of the following three categories: listening to (or interrogating) informants, observing behaviour, or examining historical traces and records. (Harding, 1987, p. 2)
It can be argued, therefore, that most research makes use of a number of methods to produce data (Cantrell, 1993; Harding, 1987; Patton, 1990). As discussed above, that is true of this study and, to a certain extent, I have utilized two of the three categories outlined by Harding in this research to adopt a ‘multimethod’ approach. The study consists of two parts: a policy search and interviews.

As part of the search for patterns of meaning in marine education and in keeping with narrative inquiry, I have listened to the informants’ stories through the interviews (both formal and informal). In addition, I examined historical traces and records by investigating the legislation and policies pertaining to the field and explored the literature generated by the educators in regards to their own work, as discussed below.

3.2.1 Part One - Policy Search

In order to form an idea of some of the policy and other contextual factors that influenced the marine educators and the programs they designed, I researched and investigated the relevant historical (and more contemporary) traces and records. These included: National, State/Provincial/territorial, Regional and, in some cases, Local Government policies, strategies and plans; local media; records and procedures relating to marine environmental education practices and community involvement - both in Victoria, Australia and in British Columbia, Canada.

In both Victoria and BC, I contacted government departments to determine what (if any) policies or strategies they had that influenced the coastal/marine environment. This proved to be an easier task in Australia as I was situated there and could either make numerous local phone calls to track down appropriate documents, or drop in to talk to government officials directly. This was not the case for British Columbia, however. Although I made concerted attempts to contact various government departments whilst in Canada, I did not have as much time, personal contacts nor funds to make this as straight forward as it was in my own home town. This meant that I had to find other avenues to locate the documents I needed. I decided to:

- Utilize the internet to access government websites and download appropriate documents (for both Victoria, Australia and BC, Canada);
- Write to Government Ministers (in both Victoria, Australia and British Columbia, Canada) to ask them for lists of acts or policies pertaining to the coastal/marine environment;
- Contact Government Departments (in both Australia and Canada);
- Consult with Academics both in Australia and Canada\(^{11}\) (including my supervisors);
- Undertake searches through the literature on recent changes to coastal/marine environmental policies;
- As part of the interview process, ask the participants what policies they were aware of that influenced the coastal/marine environment;

In Victoria, Australia, I attended conferences and workshops, and joined (and even became a committee member on) key environmental education and marine education groups to stay abreast of relevant changes in legislation or curriculum developments.

Through this process I identified the legislative documents that are most relevant to the coastal/marine environments in both Victoria, Australia, and in British Columbia, Canada. These documents are shown in Table 1. They are analysed and discussed further in Chapter 4 – Law of the Sea.

**Table 3.1: Matrix of examples of coastal & marine legislation in Victoria, Australia, and British Columbia, Canada**

<table>
<thead>
<tr>
<th></th>
<th>International</th>
<th>National</th>
<th>State/Provincial</th>
<th>Local</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Fisheries Act (1868)</td>
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<tr>
<td></td>
<td></td>
<td>National Parks Act (2000)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Species at Risk Act (2002)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^{11}\) Professor Geoff Wescott was exceptionally helpful in Victoria, Australia, as was Mr Bill Wareham from the David Suzuki Foundation in British Columbia, Canada.
### Part Two - Selection of participants and interviewing

According to Patton (2002) “(t)he purpose of interviewing, then, is to allow us to enter the other person’s perspective” (2002, p. 341). This concept is based on the assumption that “the perspective of others is meaningful, knowable, and able to be made explicit” (2002, p. 341).

Bearing this in mind, the second part of the study (the largest part) comprised interviewing perceived ‘experts’ in the field. Interviews were carried out with participants from Victoria, Australia, and from British Columbia, Canada.

The choice was made to interview ‘experts’ as they were generally the key designers and deliverers of education programs and most likely to have an understanding of government policy and its influence on these programs. It was expected that these ‘experts’ would have had some influence on government policies and legislation, and have been cognizant of (and able to identify) the input/influence they had had. The interviews had a dual role: to gain insight into marine education generally, and to understand the role of the educators, and what drives their practice.

The interviewees for this study were selected over time and according to strict criteria. Initially, attempts were made to ensure a gender balance occurred, however, this proved to be impossible, predominantly due to the low numbers of women in the field who met the criteria of the study.

There were two main criteria to be met in order to be selected for the study. First, all participants had to have been recommended by at least two other perceived experts in the field of marine education or environmental education (that is, by their peers and colleagues). A small panel of people that are knowledgeable in the research area made the initial identification of experts. To be considered an ‘expert’, the potential participant had to be recognized by their peers as having made a significant contribution to their chosen field. This could have taken the format of academic papers, formalizing legislation, and so on. Given the comparatively small field that is the focus of this study, it was perhaps not surprising that many of these ‘experts’ were themselves recommended by other participants of the study.

Secondly, potential interviewees must have made a significant contribution to the field of marine education. A ‘significant contribution’ was defined as an act or event that moved the field forward or otherwise added to the body of knowledge.
Ten potential participants were initially selected: four from Victoria, Australia (three men and one woman); and six from British Columbia, Canada (three women and three men). Unfortunately, the sole female participant from Australia resigned from her position (and, in fact, from the field altogether) and chose to forgo participating in the research. Another female participant was also excluded after preliminary analysis of the data indicated that, although she was obviously set to make a significant contribution to the field, as yet she did not have the experience and history of achievement that the other marine educators had. Accordingly, both women were removed from the study and their data deleted.

Eight participants remained: Geoff Wescott Mark Rodrigue and Harry Breidahl from Australia; and Gloria Snively Rick Kool Calvin Parsons Patrick O'Callaghan and Susan Staniforth from Canada.

When I began to identify the potential participants for this research, one of the male participants interviewed from Canada was actually based in Melbourne at the Queenscliff Marine Discovery Centre. Patrick O'Callaghan moved to Canada shortly afterwards, where I interviewed him. Although he is now back in Geelong, I have classified him as a Canadian interviewee as, at the time of the interview, he was working in the Canadian marine environment and his responses were, arguably, embedded in that culture.

These perceived experts were invited to participate in the study to share their views regarding their background in marine education, their goals for the education programs they deliver, their experiences in running such programs and their expectations of these programs. In addition, they were asked about relevant coastal policies and legislation that they take into consideration when planning their programs, and how they are incorporated, as well as their role in policy and legislation and their thoughts on the field generally.

**The interviewing process**

The interviewing process involved a series of contacts with each participant over a ten year period. A key feature of the interviews was that they were iterative, involving feedback and opportunities for further elaborations on key issues by the participants, and posing of additional questions by me as a result of the unfolding analysis. This process is described below.
The Canadian participants were interviewed predominantly during a two-week study visit to British Columbia, Canada, in July/August, 2003. The Victorian participants were interviewed during 2004-2005 and interview times were dependent on their schedules.

All participants were initially contacted by email, followed by a telephone call inviting them to be a part of the study. Interviews were conducted at a time and place convenient – and comfortable - to the participant\(^{12}\). The interviews were designed to take approximately one hour, although many went overtime as the participant wanted to continue telling their story. Although these were initially meant to be formal interviews, questions were often talked around during a flowing conversation so that a number of questions would often be answered at a time, or alternatively not answered at all so that the question would have to be repeated in another way.

All the interviews were taped and typed transcripts were produced. As negotiated with the participants, the transcripts were returned to the interviewee and they were asked to read over and amend or clarify their comments. In line with narrative inquiry methodology, this gave the participant ownership over their own story.

The interview questions were aimed at addressing the key questions outlined at the start of this chapter. Accordingly, they were written and piloted with volunteer local experts in environmental education and with two of the initial Australian participants. Comments and recommendations were collated and the interview questions amended accordingly. The questions were altered slightly for the Canadian interviews to allow for the difference in legislation. For instance, the Canadian interviews consisted of twenty-one questions and the Australian interviews were comprised of thirty-two questions. This variation in number reflected the questions that were related to the marine parks legislation that had recently been passed in Australia, and that were only pertinent to the Victorian marine educators. Both question protocols are located in the Appendix, (Appendix 1: Australian interview protocol; Appendix 2: Canadian interview protocol).

After transcribing and beginning to analyse some of the first interviews, it became obvious that further questions needed to be asked to clarify aspects of the study. As a result, participants were posed further questions, either electronically through email, or face-to-face (where possible).

\(^{12}\) This meant the interviews were held in an array of places from cafes to harbour jettys, backyards to offices, boats to University parks with flowing water as the backdrop – wherever the participant chose.
Informal interviews also became an ongoing event as transcripts were exchanged, questions completed and matters clarified. This continuing communication proved to be a useful way to keep in touch with changes in the coastal/marine education field on both sides of the Pacific Ocean. It was also the most appropriate method to adopt to ensure a co-construction of narrative took place.

It is recognized common practice in collaborative ventures to send written documents back to the participants for final discussions or to work with the participants throughout the writing process. If the latter is the case, then the case records of the work can be taken as data (Connelly and Clandinin, 1990). This process adds to the robustness and reliability of the data by enabling the participants – or the storytellers - to contribute to the interpretation of their story.

As Connelly and Clandinin (1990, p. 10) point out:

Because collaboration occurs from beginning to end in narrative inquiry, plot outlines are continually revised as consultation takes place over written materials and as further data are collected to develop points of importance in the revised story.

This collaboration process needs to develop over time as a trusting relationship needs to be established between researcher and researched:

Narrative inquiry requires a great deal of openness and trust between participant and researcher: The inquiry should be a mutual and sincere collaboration, a caring relationship akin to friendship that is established over time for full participation in the storytelling, retelling, and reliving of personal experiences. It demands intense active listening and giving the narrator full voice. Because it is a collaboration, however, both voices are heard. (Marshall and Rossman, 1999, p. 122)

This collaboration is essential as the researcher, in interpreting and analysing the story, becomes a part of the story itself. As Bochner points out:

It’s not as if the analyst can transcribe the story’s meanings, is it? When I sit down to analyse a story, there’s the story, and there’s me. The meaning of the story is not immanent in the text. The process of theorizing, analysing, and categorizing personal narratives is shot through and through with the imagination and ways of seeing of the interpreter. When I’m the one interpreting the story, I’m no more free from the cultural frames of reference in which I am embedded than is the storyteller. In this sense, I’m, inside what I’m analysing and part of it. If the storyteller is a cultural production, well, then so is the analyst. (2001, p. 135).
Chapter 3: Compasses, Astrolabes, Stars and Navigation

The particular nature of this narrative enquiry used in this study satisfies the key criteria for a collaborative inquiry. The process of undertaking the two interviews and the extended email contact that was carried out with each of the educators enabled a much richer sense of the educators’ narratives to develop than was originally envisaged. This collaborative process allowed the interviewees and me to develop a relationship that was built on trust and openness. I felt I had a responsibility to ensure that the interviewees were happy with how I was interpreting and recording their stories. This is why I offered to send all of the interviewees not only the transcripts of their interviews for amendment, but the text that I was writing about our discussions and the analysis of their stories. As discussed above, this offer was not taken up.

3.3 Data Analysis

All studies need to produce data, analyse that data and reflect validation of some kind. In this study a triangulation of observations was undertaken through: a) investigating government legislation and policies; b) interviewing a number of key experts in the field; and c) drawing on literature (including marine education, environmental education and marine policy, and so on); and d) my own experience in observing the field. As a result, there was a range of data that required analysis, both individually, then in a way that brought the findings together. Consequently, there were various steps in the analytical process.

**Analysing the policy documents:**

The government policy section was analysed by comparing which legislation the marine educators identified as most pertinent to themselves and their programs. I also reviewed the most relevant documents, identifying how government policy influences education programs and their designers.

The ideas emerging from this analysis are represented in Chapter 4.

**Analysing the interviews:**

The analysis was iterative and ongoing during the interview process. As described above, the marine educators’ interview transcripts were returned to them with the request that they amend them in any way that they deemed appropriate. After initial analysis of this data, some further questions were sent to the interviewees and most responded.

This data was then reviewed and the key elements of the individual stories that I identified and interpreted were then written into a table. As Van Maanen (1988) points out stories that are orally
generated (that is, via an interview) require transcription and transformation into text for analysis, that is, they must be “textualised”. By textualising the data and tabularizing it, commonalities across the interviewees’ stories became identifiable.

Mishler (1986) explains that people will frequently relate their experiences in a storied form as this is how they give these experiences meaning and so understand them. If the researcher doesn’t limit the answers to responses relevant to narrowly focused questions, then the interviewee will generally provide a “storied answer”. And so it was that the stories the interviewees told were loosely based around the questions that I asked. As I did not restrict the time (although I continuously conferred with the participant regarding the time to ensure they were still happy to continue with the interview), nor did I constrain the interviewees to respond to the relevant question, the participants were able to relate those stories that seemed most pertinent to answering the questions. This means that the answers I received were loosely based around the questions that I asked, but I felt that the responses were far thicker with meaning and the individual’s understanding of the world than if I had approached the interview in any other way.

Thematic analysis:
The thematic analysis was used to generate themes that evolved over time as I interacted with the interviewees; in personal communications with other academics and experts in the field (for example, Mr. Bill Wareham from the David Suzuki Foundation); as I worked with the data; gained feedback from my supervisors; and interacted with the literature. As the process was iterative, I developed themes at various stages and the changes in these theme sets are outlined in Table 3.1.

By tabularising the responses for each question I was able to explore the commonalities and differences in the responses. From this analysis I drew out broad Theme Set 1, shown in Table 3.1. These themes were mainly structured around the interview questions.
Table 3.2 Changes in emergent themes

<table>
<thead>
<tr>
<th>Theme Set 1: Post initial analysis</th>
</tr>
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<tbody>
<tr>
<td>Defining marine and coastal education;</td>
</tr>
<tr>
<td>The significant life experiences of the marine educators that informed their practice;</td>
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<tr>
<td>Educational theorising;</td>
</tr>
<tr>
<td>The government policies that shape marine community educational programs;</td>
</tr>
<tr>
<td>Government and community relationships;</td>
</tr>
<tr>
<td>Marine educational programs and their effectiveness in delivering key messages;</td>
</tr>
<tr>
<td>The Future of marine education.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme Set 2: Post collaboration with supervisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>The scope of marine education and the significant shifts in the field;</td>
</tr>
<tr>
<td>The personal experiences and influences (including significant life experiences) that shape the marine educator;</td>
</tr>
<tr>
<td>Promoting an environmental perspective and shaping the practice in the field;</td>
</tr>
<tr>
<td>Marine educators’ practice in designing and delivering educational programs;</td>
</tr>
<tr>
<td>How policies shape marine educators’ practices;</td>
</tr>
<tr>
<td>The lines of communication between Government and communities;</td>
</tr>
<tr>
<td>The Future and its challenges for marine education and marine educators.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme Set 3: Final themes guiding thesis development</th>
</tr>
</thead>
<tbody>
<tr>
<td>The nature of the educators’ beliefs and the life experiences that they associated with these;</td>
</tr>
<tr>
<td>The relationship between their pedagogical beliefs and practices, and their environmental commitments;</td>
</tr>
<tr>
<td>Their insights, from their positions as experts, into the key issues and movements concerning marine education;</td>
</tr>
<tr>
<td>Their roles with respect to the communities they interacted with, the educational programs, and the government legislature.</td>
</tr>
</tbody>
</table>
To validate my interpretations, I took the transcripts, the tabularized data sheets, and my conceptualized themes to one of my supervisors (an expert in environmental education and research) and asked her to review my themes and thinking processes. Through this consultation process, the ideas and themes were refined and re-ordered to ensure the concepts truly encompassed the participant's stories, leading to Theme Set 2.

Initially the themes closely followed the questions that were asked, but over time, as the analysis and writing progressed and the themes re-constituted into chapters and sections, the major themes were re-ordered into Theme Set 3 to focus on the nature of the educators' beliefs, their pedagogical beliefs and commitments, insights into issues and movements in marine education, and their complex roles. This last theme was initially conceptualised in terms of a complex web of relationships with a variety of stakeholders, but over time the analysis of their relationships coalesced into a consideration of their roles as mediators, advocates, and as activists in the marine environment context.

The shift in thinking that accompanied this re-conceptualisation was grounded in my readings around aesthetic understandings and my ‘discovery’ of the aesthetics framework (Pugh and Girod, 2007). Finding this framework was transformative. By looking through this lens, the marine educators' narratives became more than responses to research questions; they became stories the marine educators were telling about their passions and sense of identity. This realisation changed my focus from looking for themes within the research questions to looking at the marine educators themselves. I was able to view the data in a less instrumental manner, and began to see the educators as more than deliverers of educational programs in marine environments. Instead the roles that they played in the intricate web of political, legal, social and educational elements, and in the relationships that existed between these elements, became key themes in this research study.

In re-visiting the raw data it became clear that the marine educators' stories showed a rich mix of attitudes, knowledge and behaviour in both their stance and the way they understood the world that was reflected in their activism and their practices. As discussed, the investigation and adoption of an aesthetic understanding framework proved to be the key step in giving coherence to the data and enriching the thematic analysis. This began a
new phase in the analysis cycle which allowed further re-ordering and interpretation of the data around this theoretical perspective.

This theoretical framework has become central to the thesis development and has enabled a coalition of themes relating to the educators’ beliefs and practices, understanding that their practices were both pedagogical and environmental in nature. The final analysis has enabled the construction of the thesis, and now forms the basis for the analysis represented in Chapter 6 which explores the marine educators’ personal aesthetic understandings and what informs these (the first theme). The policy framework explored in Chapter 4 provides the backdrop for contextualising the marine educators’ work that is discussed in Chapter 7. By drawing on both Chapters 4 and 6, Chapter 7 further explores the marine educators’ aesthetic understandings and how these inform their practices as change agents, activists and mediators in the relationships between policy, community and education (the second and third themes).

3.4 Limitations to the Study

As in all research, I encountered a number of limiting factors that required resolution, including the following:

Geographical distance and lack of contacts meant that it was difficult to achieve equal access to government documents, policies and programs that exist in Canada.

This research has been done over a period of time, but it only provides a snapshot in time. As with everything, things have moved on since the study was begun, and, although, policies and protocols were up to date at the time of writing this thesis, it must be borne in mind that this is a dynamic field that is in a continuous state of flux at the moment. Whilst this is an important issue to remember, it is also necessary to understand that the relationship between policy and practice will stay the same even though the policies themselves may have changed.

Given the size of the field and the selection criteria, not many people participated in the interview process, so that for contrast purposes between Victoria and British Columbia, for instance, the findings are indicative rather than generalizable. Consequently, this study is
limited to two study sites and to a small number of marine educators in order to make the research practical. Although this limits the generalizability of the findings even more, it allows for an in-depth study of the groups selected.

### 3.5 Ethical Considerations

A major part of this study was eliciting the perspectives of key people in the marine education arena, that is, those people who had made significant (and ongoing) contributions to the field. Initially it was planned that all data would be confidential and that all participants would be anonymous. As the study evolved, however, it became apparent that, given the nature of the research and the position held by the individual participants as recognised experts in the field, it was impossible for anonymity of participants to be achieved.

Although at the outset this appeared to be problematic, in reality it proved to be an empowering factor. Now the participants could be named and, in accordance with narrative methodology, could now relate their own stories in their own words.

Accordingly all participants were invited to take part in the study with the understanding that they gave approval for the use of their names in the thesis (and in future publications). Participants were given the opportunity to review and amend the interview transcripts in order to ensure all possible avenues were offered to them to have control over what was published. In this way the information published was negotiated with participants “to give expression to moral commitments about the reflexivity of the documentation aspect of the research act in people’s lives” (McTaggart, 1993, p. 42).

### 3.6 Chapter Summary

In this chapter I have explored the various methods and methodologies open to a potential researcher, and have argued for an interpretive case study methodology that is informed by a narrative approach. Further discussions of the research and data are explored in the next chapter which investigates the legislative and government policies that provides the background and, therefore, the context within which the marine educators work.
Chapter 4

Law of the Sea:

Policies, Acts and Strategies

Behind all the laughing, Vegemite-smeared faces there are clean beaches, blue water, unravaged coastline, things largely lost to most Europeans.

(Tim Winton, 1997)

Introduction
For a very long time a major source of conflict between seafaring nations have been the perceived limits of maritime jurisdictions. It wasn’t until the 17th century that the territorial sea and the high sea were generally accepted as two broad areas of rule (Hebert, 2002). The territorial sea was under the adjacent coastal nation’s authority, while beyond this lay the high sea where all nations had freedom to navigate and fish, and to which no nation could lay claim.

“Prior to the mid-20th century the coastal state jurisdiction rarely exceeded more than three nautical miles offshore” (Prescott & Schofield, 2005, p. 9). However, the amount of maritime space that comes under the regime of coastal states has increased dramatically since then. Now, under the 1982 United Nations Convention on the Law of the Sea (UNCLOS III), coastal nations have rights in respect to natural resources in these extended maritime zones, and corresponding responsibilities to manage these resources effectively13 (Treves, 2008).

13 According to Julian (2005, p. 35) UNCLOS covers issues “such as maritime zones, fisheries conservation and management, piracy, transit through international straits and protection and conservation of the marine environment”, and “acts as an umbrella or framework agreement allowing States to develop more detailed rules on specific issues”.
Arguably, therefore, a nation’s coast (and the corresponding marine environment) is one of the sovereign state’s greatest natural assets. It is an area of enormous environmental, social and cultural significance. In Australia alone, the immense diversity of flora and fauna, and the great variety of cultural sites and landscapes attracts millions of visitors to the coast each year. But coastlines around the world are in crisis due to conflicting economic pressures; the impact of historical catchment management practices; pollution due to litter, oil and waste from shipping and boating, and, more frequently, from storm water and urban catchments; the effects of climate change; and the myriad of coastal developmental and recreational activities, to list a few of the immediate problems confronting our marine and coastal environment.

This was recognized in 1992 when the world’s nations came together at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (UNCED, 1992). During the conference, discussions were held on the marine and coastal issues that were deemed to be of major importance to the planet, and therefore required an integrated approach. It was here that a major commitment was made that all nations adopted and implemented Integrated Coastal Zone Management (ICZM).

ICZM attempts to integrate planning and management in a region (for example the State of Victoria) across the land / sea interface and the private / public land interface, to treat the coastal zone as one biophysical entity. (Victorian Coastal Council, 2002, p. 5)

As a result, the UNCED inspired a pathway of co-evolution to be created as different nations embraced the ICZM concept. In particular, a range of similar legislation was created in the various countries that had signed the Rio de Janeiro agreement. For Australia and Canada this was also true.

The Commonwealth and State Governments of Australia have identified the need to make the Australian coast more accessible, enjoyable and better managed, and as a result have chosen to adopt an ICZM approach. To do this both levels of government are encouraging the public to work cooperatively with local land managers (for example Park Services, foreshore Committees of Management, and so on) in order to responsibly manage local coastal and marine environments. This is done through awareness raising and educational programs; through community and government agencies; forums; local community action.
groups; membership on Government Committees; and so on (Victorian Coastal Council, 2002).  

As a result, at both the Federal and State levels there is legislation and many policies and strategies to ensure the coast is adequately protected and managed. These variously involve participation between government agencies (at federal, state and local levels), key stakeholders and the community.

Canada has also adopted an integrated management approach as defined in the Oceans Act (1996), although significant potential constraints to integrated coastal management exist due to the impact of Federal-Provincial/Territorial jurisdictional tensions. Again, as in Australia, Canada has an array of legislation at both Federal and Provincial levels. Unlike Australia, however, this is historically more complex and complicated, as will be discussed later in this chapter.

There are, therefore, many similarities and differences between the legislation of the two nations regarding the marine, coastal and even oceanic environments. Holistically, the similarities are obvious, but it is the subtle differences that have the most impact when examined closely. These similarities and differences were highlighted by the Assistant Deputy Minister and Special Envoy to Asia-Pacific Fisheries and Oceans Canada, Donna Petrachenko, in 2002, in her address as Chairperson of the Australian Canadian Oceans Research Network (ACORN) workshop:

> While oceans are of importance to every part of the globe, the two countries, Australia and Canada, ... have vast coastlines and histories of indigenous cultures and aspects of national development linked to the oceans. Both perform leadership roles in their regional spheres of influence with

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14 A revised edition of the Victorian Coastal Strategy was released by the Victorian Government in 2008, however, when I interviewed the marine educators the 2002 Victorian Coastal Strategy was still in operation. In order to contextualize the marine educators’ comments and actions within the policy framework, I have used the 2002 Victorian Coastal Strategy to aid in constructing the legal and political backdrop for the educators’ work.

15 Donna Petrachenko was the Assistant Deputy Minister – Special Envoy to Asia-Pacific Fisheries and Oceans Canada; Visiting Deputy Secretary Department of Environment and Heritage Commonwealth Government of Australia; Visiting Professorial Fellow Centre for Maritime Policy, Faculty of Law, University of Wollongong; and Lead Shepherd APEC Marine Resources Conservation Working Group. (Rothwell and VanderZwaag, 2006, p.xviii) She also held the role of Chairperson of the Australian Canadian Oceans Research Network (ACORN) workshop in Canberra, Australia, in 2002.
concomitant results on the international stage. The two countries have ratified the United Nations
of life in many coastal communities is tied to the health of the marine environment and the
sustainability of living and non-living resources. Both countries have delved into ocean governance
issues. Australia has a Commonwealth Oceans Policy and Canada has an Oceans Act. Tackling
the issues associated with moving from sector specific management (whether it be oil and gas
exploration and development, wild fisheries, aquaculture, marine transportation, or tourism) to a
holistic integrated approach to governance is at the heart of strategic oceans’ directions in both
countries.

At the same time there are a number of areas where the countries diverge. Jurisdiction in marine
areas is shared in Australia among the Commonwealth and state governments, whilst in Canada, the
federal government has almost exclusive jurisdiction. Approaches to indigenous issues generally
and those associated with jurisdiction differ as well. The beach culture in Australia has a profound
impact upon the national psyche. In Canada, the three oceans have their own individual
characteristics that are reflected in the associated patterns of human use. Australia has made a
priority of marine protected areas since the establishment of the Great Barrier Reef Marine Park in
1975, while Canada’s first federal marine protected area to protect biodiversity, the Endeavour Hot
Vents Marine Protected Area was designated only in 2003. It is the exploration of these similarities
and differences that serves as the foundation for the Australian Canadian Oceans Research
Network (ACORN). (Petrachenko, 2006).

This chapter briefly examines some of these issues, in particular the similarities and
differences between Victoria, Australia, and British Columbia, Canada, in relation to:

- laws;
- jurisdiction;
- historical drivers that impact on the legislation; and
- the place of education & community involvement and action within the
  legislation.

By reviewing the legislation and governance documents around the marine environment in
these two countries I begin to explore the relationships that exist between policy and the
public; between education and policy; and how this frames the role of the marine
educators.
4.1 Patterns of legislation

There are many, many different Acts, policies, strategies and plans that influence the management and protection of marine and coastal environments within both Australia and Canada and their respective surrounding waters. Having made a comprehensive scan of all of this governance documentation, I determined that to attempt to list them all, and to explore and explain the inter-relationship between them would be a very complex and time consuming task – and beyond the scope of this study.

In this section I will mainly review those particular acts and policies that have been identified either by the interviewed Marine Educators or through the literature as being significant influences on directions in marine and coastal education in Victoria, Australia and in British Columbia, Canada.

Table 4.1 Key examples of legislation pertaining to the coast and marine environments in British Columbia, Canada, and Victoria, Australia

<table>
<thead>
<tr>
<th></th>
<th>International</th>
<th>National</th>
<th>State/Province</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Acts/Conventions/Plans</td>
<td></td>
<td></td>
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<td>-------------</td>
<td>------------------------</td>
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</tbody>
</table>
| **Canada** | Canada Wildlife Act (1985)  
Migratory Birds Convention Act (1994)  
Oceans Act (1997)  
National Parks Act (2000)  
Park Act (RSBC1996)  
Ecological Reserve Act (RSBC1996)  
Environment & Land Use Act (RSBC1996)  
Coastal Zone Position Paper (1998)  
| **Australia** | UN Convention on the Law of the Sea (UNCLOS), (1982)  
Agenda 21, Chapter 17 (1992)  
Australia’s Oceans Policy (1998)  
Coastal action plans  
Management plans for foreshore areas and national parks and reserves |
<table>
<thead>
<tr>
<th>Country</th>
<th>Legislation and Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Oceans Act (1997)</td>
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<tr>
<td></td>
<td>Federal Marine</td>
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<tr>
<td></td>
<td>Protected Area</td>
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<tr>
<td></td>
<td>Strategy (1998)</td>
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<tr>
<td></td>
<td>Canada National</td>
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<td></td>
<td>Marine</td>
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<td></td>
<td>Conservation Areas Act (2002)</td>
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<tr>
<td></td>
<td>Oceans Strategy</td>
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<td></td>
<td>(2002)</td>
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<td></td>
<td>Health of the</td>
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<td>Oceans Initiative</td>
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<td></td>
<td>(2007)</td>
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<td></td>
<td>Environment</td>
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<td>Protection and</td>
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<td></td>
<td>Biodiversity</td>
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<tr>
<td></td>
<td>Conservation Act (1999)</td>
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<td></td>
<td>Ecological Reserve Act (RSBC1996)</td>
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<td></td>
<td>Environment &amp; Land Use Act (RSBC1996)</td>
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<td>Wildlife Act</td>
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<td>(RSBC1996)</td>
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<td></td>
<td>Park Act</td>
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<td></td>
<td>(RSBC1996)</td>
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<td></td>
<td>Powers derived</td>
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<td></td>
<td>from: Local Government</td>
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<tr>
<td></td>
<td>Act (RSBC1996)</td>
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<td></td>
<td>Management plans for</td>
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<td></td>
<td>foreshore areas</td>
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<tr>
<td></td>
<td>e.g. Georgia Strait</td>
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<td></td>
<td>Alliance</td>
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</table>

All of the categories listed in the table above are inter-related and either directly or indirectly impact upon the respective country and state/province coastal and marine environment. For example, legislation pertaining to inland waterway areas will influence the health of the fishing industry through the reduction of pollutants released into the waterways that are eventually taken down to the sea.

As discussed above, I cannot examine all of these categories of legislation and policy here and so have shaded those areas that are beyond the scope of this thesis. I will focus on only that legislation that has been identified by the interviewees and the literature reviews undertaken as programs and materials that impact on marine education and the role of the educators.
4.2 The Victorian and Australian Context

In Victoria the Coastal Management Act was passed in April 1995. This lays out a structure and process for Coastal Zone Management in Victoria (Parliament of Victoria, 1995). One of the purposes of this Act was to establish the Victorian Coastal and Bay Management Council as the lead agency. This has been established as the Victorian Coastal Council. Another outcome of the Act was the Victorian Coastal Strategy (released on 20 November 1997, rewritten and re-launched in 2002, and again in 2008) which was designed to be the overall strategic planning document on coasts for the State (VCC, 1997; 2002; 2008).

The successful implementation of such a strategy plan relies heavily on there being strong community awareness and appreciation of the importance of all Victorians caring for the coast as 96% of Victoria’s coast is in public ownership (Victorian Coastal Council, 2002; 2008). The strategy plan thus indicates a need for effective community education programs related to coastal environments as part of the implementation process. It also highlights the crucial role in coastal planning and management that community groups play “by contributing their time, local knowledge, expertise and being part of the decision-making process” (VCC, 2008, p. 8).

There are a number of opportunities for community education signposted within the Strategy, including: increasing community awareness, improving training opportunities for coastal and marine managers and planners, increasing opportunities for community participation and education, annual awards for excellence in the coastal environment, using innovative education methods to protect intertidal and marine habitats and associated fauna, and increasing community awareness of Indigenous heritage.

It is also relevant to this study to review the history of management of the Victorian coast, the Acts that have dictated how this environment has been utilized and the policies and strategies that exist today.

4.2.1 Federal Legislation

The United Nations Convention on the Law of the Sea (UN, 1982) empowers Australia with the rights and responsibilities over approximately 16 million square kilometres of ocean.
The Australian Government is the sole authority for the great majority of the marine area, which stretches around the Australian continent, from the waters 200 nautical miles seaward of the coastal baseline (which constitutes the external boundaries of the Exclusive Economic Zone or EEZ) to 3 nautical miles from the coastal baseline.

Within this Commonwealth marine area, Australia has both the right to explore and exploit living and non-living resources, and the corresponding responsibility to protect and conserve the marine environment.

As Australia is under federal governance, powers are divided between the Commonwealth and state and territory governments. Legislation has given the States and the Northern Territory legislative powers over coastal waters out to three nautical miles from the territorial sea baseline. This means that the Commonwealth, State and Territory governments must work together to ensure an integrated management of the coastal and marine environments.

At the Federal level there are many initiatives which relate to the coastal and marine environment. Historically, the major initiatives were the Commonwealth Coastal Policy (released in 1995) (Commonwealth of Australia, 1995) which, up to date, has had little
progression made on it from a National level (Wescott, 2006), and the Coasts and Clean Seas Program (announced in 1997) which is still relevant today.

The Coasts and Clean Seas initiative was part of the first phase of the Natural Heritage Trust (1996-97 to 2001-2002), and comprised a number of programs including:

- Coastcare
- Clean Seas Program
- Coastal Monitoring Program
- Marine Species Protection Program
- Introduced Marine Pests and Ballast Water Mitigation Programs
- Marine Waste Reception Facilities Program
- Coastal and Marine Planning Program.

It was in 1997 that *Australian Oceans New Horizons* was released. This was a paper developed “to assist consultations with State, Territory and Local governments, peak bodies and organizations and the general public on the broad framework and associated actions that should underlie an Oceans Policy for Australia” (Department of the Environment and Heritage, 1997, p. 1).

This paper was the fore-runner of the one of the major Commonwealth policies related to Australia’s open oceanic waters. In 1998 Australia’s *Oceans Policy* was launched with the aim to manage the enormous ocean space for which this country is responsible.

The Policy recognizes the need to maintain the health of the ocean ecosystem. It also recognizes that the promotion of strong, diverse and internationally competitive marine industries, important to national and regional economies, depends on the long-term sustainability of a wide range of ocean uses (National Oceans Office, 2005b).

*Australia’s Oceans Policy* has the following broad goals:

1. To exercise and protect Australia’s rights and jurisdiction over offshore areas, including offshore resources.
3. To understand and protect Australia’s marine biological diversity, the ocean environment and its resources, and ensure ocean uses are ecologically sustainable.

4. To promote ecologically sustainable economic development and job creation.

5. To establish integrated oceans planning and management arrangements.

6. To accommodate community needs and aspirations.

7. To improve our expertise and capabilities in ocean-related management, science, technology and engineering.

8. To identify and protect our natural and cultural marine heritage.

9. To promote public awareness and understanding.

(Commonwealth of Australia, 1998)

At the very heart of this policy is the development of Regional Marine Plans, the first of which is the South-east Marine Region of Australia’s Exclusive Economic Zone. This region includes more than two million square kilometres of ocean territory off Victoria, Tasmania, southern New South Wales, eastern South Australia and sub-Antarctic Macquarie Island (National Oceans Office, 2004). Many stakeholders contributed to the development of the plan as, according to the National Oceans Office website:

Regional marine plans consider all ocean uses together to develop a management approach that makes decisions based on marine ecosystems, rather than artificial borders laid down according to jurisdictional or sectoral boundaries. These plans are not an additional layer of regulation but are designed to enhance and streamline existing management. (National Oceans Office, 2005a).\(^\text{16}\)

However, only the Commonwealth Government initially signed Australia’s Oceans Policy which meant that negotiations still needed to be conducted with State and Territory Governments to ensure all aspects of the Policy are implemented.

Apart from the Oceans Policy, the 1999 Environment Protection and Biodiversity Conservation Act (Commonwealth of Australia, 1999) is the lead piece of environmental legislation to affect Australia’s marine and coastal environment. This Act replaced a

\(^\text{16}\) Perhaps the most exciting aspect of this strategy is that it is a world first and represents a new order in oceans management. Only time will tell, however, if it has been an effective approach to protecting and managing such a fragile and diverse environment.
number of Commonwealth statutes and created new assessment and approval roles in regards to land use activities that were traditionally the responsibility of State Governments. These included activities that could affect nationally threatened species, mining and petroleum exploration in marine areas, and wetlands (and associated water allocations).

It was in 2001, however, as part of the election promise, that the Howard government gave a commitment to maintain the momentum created by the Natural Heritage Trust by implementing plans and further developing and supporting such initiatives (Department of the Environment and Heritage, 2005). The Howard government promised to establish a National Coastal Policy (although by 2004 this had evolved into a draft “National Co-operative Approach to ICZM” – with no direct community input at a National level) (Wescott, 2006).

In 2005, it was announced that Regional Marine Parks would be established under the Environment Protection and Biodiversity Act (1999) (Commonwealth of Australia, 1999). By making this link, it ensured that an environmental focus was a key priority of marine plans (Vince, 2008).

As discussed above, State and Territory governments have their own marine areas to protect and manage through legislation. Some governments have done this well, while others have not done quite so well. However, this difference has been informed and driven by local issues which, as a result, have had an impact on how the coast and marine environment has been protected in different states. Small decisions based on local issues may not seem that important at the time. However, if many of these small decisions are made over time without a long term view, they have an augmentative potential to lead to the destruction – or protection – of the coastal and marine (and even oceanic) environments.

The following section gives a snapshot of how the Victorian coast has been legislated over time.
4.2.2 Victorian Coastal Legislation

For centuries, the Victorian coastline has been a highly valued environment for its diverse resources and the many varied uses that can be made of them. It is this diversity of usage that has brought this environment, like so many others over time, into the political spotlight. Initially the coastline was utilized as interest groups saw as appropriate to their needs. Inevitably, this led to pressures requiring legislation to protect the areas involved and allow the various and increasing numbers of stakeholders to equitably exercise their rights to use these environments.

This process began in 1825 when a dispatch was sent from Lord Bathurst, Secretary of State for the Colonies, to the Governor of NSW, Governor Brisbane. The dispatch directed Governor Brisbane to make reservations

...for the purposes of health and recreation; and lands in the neighbourhood of navigable streams or the sea coast... before the wastelands of the Colony are finally appropriated to the use of private purposes, (Hodges, 1981).

So it came about that in 1840 the first land was set aside as reservation for recreation in Victoria, but it wasn't until 1872/73 that the first coastal reservations were made in the Port Phillip and Port Campbell areas. In 1879, the Government of the colony of Victoria reserved all remaining land held by the public (then called Crown Land) on the Victorian Coast. This meant that about 94% of the Victorian coastline was permanently reserved by the Government. The remaining area is held in private hands (Wescott, 1993).

From here on the coast was defined and packaged by political and administrative boundaries and then redefined as different political parties came into power.

Wescott (1988) identified that a substantial review in coastal administration in Victoria took place between 1982 and 1987. Shortfalls in coastal planning and management of the Victorian coast were revealed by the then Cain Labor Government and a major review in coastal administration began. Unfortunately, this review did not live up to the expectations held by many interested in coastal management. For example, Wescott (1988) believes a number of losses eventuated that were contrary to the Government's cited policies in the coastal area. These losses, he feels, were in public participation and co-ordination and
arose due to economic efficiency concerns. The review did, however, highlight several problems that needed to be considered if a coastal environmental policy was to evolve, including the necessity of public input into decision making processes.

In 1987 the State Conservation Strategy was released. Within this document the Victorian Government outlined its commitment to community involvement in environmental decision making, to:

…encourage community involvement in the decision-making process from the earliest stages. People lacking technical knowledge or isolated by language or cultural background will be encouraged to participate through community organisations. The important and growing role of community-based groups as initiators and innovators in conservation and environmental improvement will be further supported. Funds will continue to be made available to assist community groups to participate in government environmental decision-making. (Victorian Government, 1987, p. 90).

Increasing activity by marine environmental lobby groups and individuals, and strengthening recognition of the role of local community in developing and implementing policy, contributed to the establishment of avenues that enabled public engagement and participation in marine environmental management. For example, Wescott (1988) describes considerable lobbying from environment and municipal groups to establish a Coastal Advisory Council as a venue for input of public views on coastal matters. At this time “community groups were participating in coastal restoration with little or no coordination or assistance from responsible authorities” and the “delegated Committees of Management responsible for approximately 50 per cent of coastal Crown Land had little or no coordinated form of financial assistance from (the) responsible authority” (Coast Action, 2001, p. 1).

It was not until December 1993 that the then Environment Minister (Mr. Mark Birrell) approved the implementation of a Coast Action Community Program. In 1994 this community consultation carried over into a reform of the relevant Victorian legislation and a proposal to establish a Coastal and Bay Management Council to act as the peak advisory body to State Government (Coast Action, 2001).
In 1995 the Coastal Management Act clearly set out the provision to establish the Victorian Coastal and Bay Management Council. The Council was to include 6 persons from the community "with experience in conservation, tourism, recreation, commerce, issues relating to indigenous peoples, community affairs or coastal engineering". The functions of the Council include:

- to liaise with and encourage the co-operation of Government departments, public authorities, municipal councils, industry, community groups and persons and bodies involved in the planning, management and use of the coast in furthering the objectives of this Act;
- to provide the opportunities for the public and interested groups to be informed of and involved in the work of the Council;
- to encourage the work of volunteers in using and conserving coastal resources;
- to give consideration to the needs of Aborigines and other interested groups in relation to the coast (Coastal Management Act, 1995, pp. 121-122).

The Act also required that the Victorian Coastal Strategy provided for long term planning for the Victorian coast and to:

- Ensure protection of significant environmental features;
- Provide clear direction for the future use of the coast, including the marine environment;
- Identify suitable development areas and opportunities on the coast; and
- Ensure the sustainable use of natural resources.

(Victorian Coastal Council, 2002)

In May 1996 the Victorian Government announced the formation and composition of three regional Coastal Boards: the Gippsland Regional Coastal Board (RCB) that covers the coastal area from Mallacoota on the New South Wales border to Inverloch; the Central RCB that operates from Inverloch to Breamlea; and the Western RCB that administers the coast from Breamlea to the South Australia border. In June the same year, the Commonwealth Coastcare Program was launched jointly in Victoria by Ministers Tehan and Hill. The draft Victorian Coastal Strategy was released for public comment in
November 1996, while the first week of summer provided the launch pad for the inaugural Coastcare Week in Victoria (Coast Action/Coastcare, 2001).

In 1997 the Commonwealth provided funding for a Training Needs Analysis, wherein education and training providers identified coastal training requirements. The result of this was a comprehensive Short Course Training Program developed and delivered in three Regional locations for coastal land managers, community group members and agency staff (Coast Action / Coastcare, 2001, p. 3). This was also the year that the Commonwealth Government repackaged its coastal program and launched it as the Coasts and Clean Seas Initiative with a new marine-focused grants program.

More specifically relevant for my research is that in 1997 Coast Action / Coastcare commenced a Coastal and Marine Education Scoping project designed to bring marine educators together to develop a comprehensive Marine and Coastal Education Strategy and facilitate prioritization of education projects for future community grants.

The Victorian Coastal Strategy was finally released in November 1997 (later reviewed in 2002, and again in 2008). In the Strategy it stated that it "recognized and supported the enormous community and volunteer efforts in coastal and marine management through the Coast Action program - now supported by the Federal Coastcare program and the Fishcare program" (Victorian Government, 1997, p. 5). This document also highlighted the perceived strategic advantages provided by public ownership of the Victorian coast including:

- an established sense of public ownership and access which demonstrates a clear 'stewardship' role for almost the entire coastline;
- a strong history of community and volunteer input and commitment;
- a coastline which, for the most, is visually intact and provides a major scenic attraction;
- the ability to strategically plan and develop the foreshore for public benefit.

The anonymous authors of the Victorian Coastal Strategy justifiably saw these strengths to be the result of the evolution over time of coastal and marine planning and management in Victoria, and the resultant decisions and actions. They also saw that the Strategy
...will only be effective if there is widespread community and individual support and involvement. Much of what is to be achieved can only be done through the continued involvement in coastal planning and management by individuals and community members (Victorian Government, 1997, p. 10).

To do this the document outlines ways "to raise and maintain awareness and understanding of coastal and marine processes and management issues" and "to improve communication with Aboriginal communities in coastal areas" amongst other community-related strategies (Victorian Government, 1997, pp. 20 and 21 respectively).

Similarly, the Commonwealth Government acknowledged the importance of community participation in its Oceans Policy Consultation Paper (1997) where it emphasised that the...vision for the future is one where the wider community appreciates and accepts both the economic and environmental values of the marine environment. Equally, achieving many of the goals of the Oceans Policy will rely on ensuring that communities and individuals are guiding and actively participating in the decision making process, particularly at the local level. (Commonwealth of Australia, 1997, p. 16).

Coincidentally, the United Nations declared 1998 as The Year of the Ocean, thus enabling a great deal of community awareness raising activities to be launched. For example, in Victoria, the Queenscliff Marine Discovery Centre organized a number of activities and events designed to increase community awareness for oceans and the need for their conservation. Some of these activities included:

• operating a scientist-in-residence program. A staff member from the Centre, in the role as a Marine Biologist, was sent for one week to a Primary School in Melbourne;
• advertising the Year of the Ocean during the holiday programs the Centre coordinated and running a variety of activities for the public, including rock pool rambles, etc.;
• Science Teachers Association of Victoria holding their family day with a marine theme at the Discovery Centre. The staff from the Centre demonstrated fish dissections, offered craft for children and science experiments, as well as boat cruises, etc. This was attended by hundreds of people from around Victoria;
• the Centre holding an Open Day during the April/Easter holidays. This included free admittance to the Centre and free activities. The day was attended by over 400 people;
• during Education Week, the Centre held an Education Day for interested schools. (Julie De Jong, 1998, pers. comm.)

The Victorian Coastal Strategy was reviewed in 2002 where it established “the framework for long term ecologically sustainable management of the coast” (Victorian Coastal Council, 2002, p. 1). The 2002 strategy incorporated and outlined a hierarchy of principles for coastal planning and management. This highlighted an approach to decision making that led to triple bottom line outcomes, where decisions were made to manage the environmental, social and economic forces that impacted on the coastal environment. It also included a guide for the decision making process based on a hierarchy of principles, where:

Decision makers’ priorities will be to:

1. provide for the protection of significant environmental features;
2. ensure the sustainable use of natural coastal resources;
3. undertake integrated planning and provide direction for the future; and
4. when the above principles have been met, facilitate suitable development on the coast within existing modified and resilient environments where the demand for services is evident and requires management.

(Victorian Coastal Council, 2002, p. 20)

The strategy very clearly sets out how the objectives and principles it puts forth are to be achieved and provides for increasing public awareness (primarily through programs such as Fishcare and Coast Action / Coastcare), community involvement (through community monitoring projects like WaterWatch and Beach Report), community input into decision making processes, and encouraging volunteer groups to assist in undertaking conservation works, rehabilitation, weed and pest control, etc.

In 2004, the Victorian Coast Report was released which reported on the implementation of the Victorian Coastal Strategy (2002) and how it met the objectives of the Coastal Management Act 1995. The data was produced when the Victorian Coastal Council contacted each agency identified in the 2002 document as a lead agent.
In the foreword to this document, the Chairman of the Victoria Coastal Council, Diane James, gives her view of what the assessment revealed, indicating that progress in implementing the Victorian Coastal Strategy had been strong. Some of the key points she alluded to included:

- there is a heightened level of awareness of the significance of the coast to society and improved understanding of the environmental, cultural and economic attributes.
- community engagement and participation has increased.
- strategic intervention for long term biodiversity protection has increased, particularly for marine areas, with the declaration of Marine National Parks and Sanctuaries and more sustainable approaches to fisheries.
- the role of the Victorian coast in the broader regional context is now much better understood – Victoria has unique biodiversity and we owe it to the world to look after it.

(Victorian Coastal Council, 2004, p. 3).

The Victorian Coastal Strategy was reviewed again in 2007 and released in 2008. This version emphasizes that the vision and hierarchy of principles embedded within the document were similar to those outlined in the previous 1998 and 2002 editions. However, this edition also focuses on three significant issues: “climate change, population growth and marine ecological integrity” (VCC, 2008, p. 6). Underpinning the strategy is a commitment to ecologically sustainable development (ESD); integrated coastal zone management (ICZM); ecosystem-based management (EBM); and adaptive management.

The 2008 Victorian Coastal Strategy again accentuates the critical function in coastal planning and management that coastal-based groups and communities play “by contributing their time, local knowledge, expertise and being part of the decision-making process” (VCC, 2008, p. 8). The commitment community groups have to their local coastal environment is also recognized in this document, as is the need to harness this enthusiasm by enlisting public assistance in environmental stewardship activities:
Community groups and volunteers are vital contributors to coastal management in Victoria. Their passion, dedication, and community and environmental spirit help deliver many improvements to the coastal environment that government would have difficulty fulfilling (VCC, 2008, p. 69).

Education and community involvement are central to the 2008 strategy which states that a “more informed community is more likely to be involved in decision-making processes and conservation projects” (VCC, 2009, p. 42). In particular, those that volunteer on Committees of Management are seen to act as a conduit for the broader community and thereby informing them of issues regarding the local coastal environment and involving them in decision-making processes. These community members are supported by various government agencies, including the Coast Action/Coastcare facilitator network.

The strategy outlines a policy for developing and implementing education, awareness and stewardship within local Victorian coastal areas. This policy identifies the following requirements:

1. Build community understanding, awareness and appreciation of coastal values and issues, in particular the impacts of climate change;
2. Ensure ongoing and meaningful community engagement and active involvement in planning, management, and decision-making;
3. Encourage and support community monitoring programs;
4. Ensure coastal, estuarine and marine planners and managers receive adequate training, resources, and guidance to make informed decisions.

(VCC, 2008, p. 43)

As a world first, legislation was passed by the Victorian Parliament in 2002 proclaiming 13 marine national parks17 and 11 marine sanctuaries18. The historic National Parks (Marine

17 The Marine National Parks now consist of: Discovery Bay Marine National Park; Twelve Apostles Marine National Park; Point Addis Marine National Park; Port Phillip Heads Marine National Park; Yaringa Marine National Park; French Island Marine National Park; Churchill Island Marine National Park; Bunurong Marine National Park; Wilsons Promontory Marine National Park; Corner Inlet Marine National Park; Ninety Mile Beach Marine National Park; Point Hicks Marine National Park; and Cape Howe Marine National Park. (Parks Victoria, 2002)
18 The 11 marine sanctuaries comprise: Merri Marine Sanctuary; The Arches Marine Sanctuary; Marengo Reefs Marine Sanctuary; Eagle Rock Marine Sanctuary; Point Danger Marine Sanctuary; Barwon Bluff Marine Sanctuary; Point Cooke Marine Sanctuary; Jawbone Marine Sanctuary; Ricketts Point Marine Sanctuary; Mushroom Reef Marine Sanctuary; and Beware Reef Marine Sanctuary. (Parks Victoria, 2002)
National Parks and Marine Sanctuaries) Bill was designed to ensure the survival of Victoria’s unique marine ecosystems by protecting them as “no take” areas. What this means is that a number of activities are now restricted or even prohibited within the boundaries of these Marine National Parks or Marine Sanctuaries. For example, all methods of fishing from the shore or at sea are prohibited, as is the taking or damaging of marine life, animals, plants and objects (Parks Victoria, 2002).

Parks Victoria as the Lead Agent in managing the Marine National Parks and Marine Sanctuaries released a management strategy outlining their vision for managing these protected areas and outlining the necessity to engage the community in their management.

The long-term protection of the Marine National Parks and Sanctuaries will be achieved with engaged, well-informed and aware communities working with managers, and acting as custodians and ambassadors. Fostering community ownership will be an ongoing process, and its extent and success can be measured by rates and levels of awareness, compliance and participation.

Key performance areas include:

- education, interpretation and communication
- community consultation
- community participation

(Parks Victoria, 2003, p. 5)

Overall, Australia, and specifically (for this study) Victoria, has come a very long way in a short time in regards to legislating for coastal and marine conservation and preservation. The increasing recognition and involvement of the public in management strategies and implementation has established a trend of increasing community group action and their subsequent (and growing) importance of the public in contributing to the policy and strategy framework. My argument is that these community groups, and their influence, work through key people who provide leadership and commitment. Researching such people can help us understand this relationship between community action and education and policy. Consequently, the role that marine educators play in this evolution in maritime governance (and community involvement within it) will be explored in this thesis.

In the next section, the equivalent legislative history for Canada, and specifically in British Columbia, is traced.
As Australia is my base, I have not been able to uncover the Canadian legislation as readily as I could with the Australian component, with which I have a history of on-the-ground knowledge. Instead I have had to rely on searches of the literature and the internet, and conversations (predominantly by telephone) I have had with members of various institutions in British Columbia and Canada in general. Although this has not provided as in-depth a coverage of Canadian maritime legislation as was possible in the Victoria case, I do believe that this exploration has afforded good insight into the complexities of the legislation. In doing so, some understanding of the similarities and differences in coastal and marine governance in Victoria, Australia and British Columbia, Canada is reached.

4.3 The British Columbian and Canadian Context

The British Columbia coastline plays a significant role in both the culture and economy of the Province. It also has a major environmental significance – locally and globally. In the document ‘British Columbia’s Coastal Zone Position Paper’, the Provincial government recognized the threats to the sustainability of the coastal resources and communities and identified the need to “take a more holistic and coordinated management approach to the coastal zone” (Government of British Columbia, 1998, p. 1).

This document informed Canada’s Ocean Strategy by presenting British Columbia’s commitment, interests and responsibilities to sustaining their coastal resources. The Ocean Strategy was, in turn, a response to the release of the Canadian Oceans Act that was legislated in 1996 but enacted in 1997. These acts and strategies are discussed further in this section.

4.3.1 Federal Legislation

Canada is bordered by three oceans. It has a coastline that is almost 250,000km long, making it the longest coastline of any country in the world, and the home of approximately 5-6 million Canadians (22% of the population). Canada is also the largest archipelago and the second largest continental shelf (6.5 million km²) on the planet. According to the Government of Canada website (Government of Canada, 2005) “Canada’s oceans represent almost two thirds of its territorial land mass” with the area of its EEZ alone covering almost half of Canada’s land mass, (making it the world’s second largest EEZ).
In addition, the nation’s “marine and coastal areas range from high arctic to temperate climates on the three bordering oceans – Atlantic, Pacific and Arctic” (Fisheries and Oceans Canada, 2007). Unlike Australia, Canada also shares borders (terrestrial and marine) with three other sovereign states, the United States of America, France and Denmark (through Greenland). Two out of the four marine regions in which Canada and the USA share coastal borders, are located in the Pacific Ocean (the other two are each in the Atlantic and Arctic Oceans) (Prescott & Schofield, 2005).

Internally, jurisdiction over Canada’s coastal areas is equally complicated and complex (Governments of Canada and British Columbia, 1998; Government of Canada, 2005) as it is split over three governments: federal, provincial/territorial and local. The federal government has the responsibility for matters that impact on the whole of Canada, this includes the fisheries. The provinces and territories are, in turn, responsible for other matters including education. Municipal governments are created under provincial/territorial law and have the authority to make by-laws that deal with local matters (Canada Government, 2004). Although the powers and responsibilities are divided between the three levels of government the divisions are sometimes ambiguous (Thompson, 2007). This degree of complexity requires a great deal of cooperation and coordination between the various agencies and governments.

The governmental lines of ownership and jurisdiction in terms of the marine and coastal environments are drawn dependent upon location along the coast and the relationship to the shore.

The Federal government has broad responsibilities for the management of the oceans and resources. This includes exclusive jurisdiction over the seabed under the open ocean (the ‘territorial sea’) extending out up to 12 nautical miles from the low water mark. It also incorporates control over the ocean (and its resources) from the territorial sea boundary out to 200 nautical miles (the ‘exclusive economic zone’) and control over the mineral resources in the continental shelf beyond the 200 nautical miles (Government of British Columbia, 1998; Government of Canada, 2005; Navarro, 2000; Peterson et al, 2005; Province of British Columbia, n.d.).
Provincial governance over coastal inland waters is also extensive and includes the shorelands, seabed and the water between Vancouver Island and the mainland (referred to as British Columbia’s ‘inland sea’). This jurisdiction incorporates the Georgia, Juan de Fuca, Johnstone and Queen Charlotte Straits including the seabed and its mineral and biological resources. Provincial ownership also incorporates the ‘inland’ areas between the headlands along the outer coast, for example the fjords, embayed areas, and inlets\(^{19}\) and the area between the high and low tide marks (Government of British Columbia, 1998; Government of Canada, 2005; Navarro, 2000; Peterson et al, 2005; Province of British Columbia, n.d.).

Although this foreshore area is not privately owned, the area is subject to local government land use regulations. This adds another dimension to governance of the coast of British Columbia, as municipalities have responsibility for much of the land-based activities that have the potential to affect the marine environment.

The coastal upland area and much of the land adjacent to the water in the southern areas is either privately owned or is Crown Lands under the jurisdiction of the province. However, much of these lands are also subject to local land use regulations.

This complex governance situation in the coastal zone compromises the coordination of programs and responsibilities between and within agencies. It also complicates the management of coastal and marine resources and has undoubtedly significantly contributed to the delay in developing and implementing integrated coastal zone management policies (Government of British Columbia, 1998; Navarro, 2000).

In a move to overcome this situation and work in partnership, on September 18 2004 the Government of Canada and the Provincial Government of British Columbia signed a Memorandum of Understanding (MOU) to ensure the implementation of Canada’s Ocean Strategy on the Pacific Coast. The intention of the MOU was to specify the respective

\(^{19}\) Due to the complexity of the legislative governance, there is some disagreement over the seabed and waters in the areas to the north of Vancouver Island, namely Dixon Entrance, Hecate Strait and Queen Charlotte Sound. Jurisdiction and ownership over these areas is claimed by both the Province of British Columbia and the Canadian Government.
roles and responsibilities of the federal government (through DFO) and the provincial government (Peterson et al., 2005). The implementation of the MOU involved developing a range of measures and sub-agreements for:

- A marine protected areas framework;
- Coastal planning and integrated oceans management planning;
- An integrated ocean information management system;
- Indicators for oceans management and state of the environment reporting;
- Streamlining and harmonizing regulatory decision making for aquaculture; and
- Sharing of information related to offshore oil and gas resources.

(Fisheries and Oceans Canada, 2004)

The Ocean Strategy, itself, is a national policy designed to ensure the implementation of the Canadian *Oceans Act*.

The *Oceans Act* (1996) is a principal legislative tool for governing the Canadian oceans. Prior to the *Oceans Act*, the federal government was predominantly responsible for the management of fisheries, overseeing the safety of transportation and the protection of fish habitats. The enactment of the *Oceans Act*, however, changed this by focusing on the optimization of the economic potential and sustainability of Canada’s oceans and marine and coastal ecosystems. The three principles, the act was founded on were:

- Sustainable Development
- Integrated Management, and
- Precautionary Approach. (DFO webpage, 2007)

The Oceans Act gave the Department of Fisheries and Oceans Canada the power to lead and coordinate all the governmental agencies with any oceans-related mandates (which included those with environmental protection mandates). Under this act, DFO was required to “develop and implement a strategy for Canada that will:

- Balance economic, social, cultural, environmental and economic values to ensure sustainable development;
- Manage the increasingly complex and diverse use of the oceans through the development and adoption of integrated management approaches; and
- Engage communities and stakeholders in making decision that affect them”. (Province of British Columbia, n.d.).

Although the Oceans Act did not overtly stipulate encouraging education or stewardship programs, it did authorize the Minister of Fisheries and Oceans to facilitate the development and implementation of federal initiatives designed to ensure the realization of the social and economic benefits of Canada’s marine resources “while protecting and conserving the country’s estuarine, coastal and marine ecosystems for the continued benefit of future generations” (DFO, 2004, p. 1). This included the establishment of Marine Protected Areas (MPAs).

This 1996 Act was implemented through Canada’s Oceans Strategy which was released in 2002. The Oceans Strategy was designed to represent the federal government’s policy framework for oceans management and assist in building partnerships. It outlined the strategic directions that were agreed upon by the provinces, the stakeholders and Canadians and incorporated a number of key activities to be pursued, including:

- Integrating science and traditional ecological knowledge to increase our understanding of marine ecosystems;
- Reducing marine pollution;
- Developing a strategy for a national network of Marine Protected Areas;
- Using Integrated Management to resolve conflicts and manage human activities in ocean areas where multiple interests are involved;
- Promoting stewardship and public awareness; and
- Promoting international collaboration to protect globally shared fisheries and ocean resources.

(DFO, 2002)

According to the Oceans Strategy website (Fisheries and Oceans, Canada, 2007) the Canadian public have indicated that they want to be more involved in ocean management. With this in mind, Canada’s Oceans Strategy is, therefore, “designed to actively encourage the participation of these groups in its evolution and implementation” (Government of Canada, 2005).
The Strategy addresses this need by recommending Stewardship and public awareness activities. These include:

- Support regional and national stewardship initiatives, including the development of a national framework;
- Promote engagement of Canadians in stewardship initiatives;
- Support and promote public awareness of oceans and ocean issues;
- Encourage public and private partnerships; and
- Promote public education on oceans.

(Fisheries and Oceans, Canada, 2007).

According to Canada’s Oceans Strategy website on Policy Framework:

Oceans stewardship means acting responsibly to conserve the oceans and their resources for present and future generations. Through stewardship initiatives, the government can encourage Canadians to volunteer and actively participate in the caring for ocean resources in meaningful and positive ways. (DFO, 2007).

So, even though education and stewardship are not addressed in the Oceans Act directly, the Canada Oceans Strategy does recognize that in order to interpret the Act these aspects are important.

Canada’s Stewardship Agenda was created in 2002 as a federal-provincial-territorial initiative to support and encourage stewardship as a key conservation tool (Federal-Provincial-Territorial Stewardship Working Group, 2002, p. 1). According to the Fisheries and Oceans, Canada, website, the significant role that stewardship needed to play within the Oceans Act was recognized in Canada’s Oceans Strategy (DFO, 2002). As a result a working group was established and the Stewardship agenda was formulated.

The Agenda describes stewardship as:

Stewardship, simply stated, means Canadians – including landowners and other individual citizens, private companies and volunteers – are caring for our land, air and water, and sustaining the natural processes on which life depends (Federal-Provincial-Territorial Stewardship Working Group, 2002, p. 1).
The Agenda recognizes that stewardship takes place primarily at the local level and identifies principles that take this into account, as do the goals and objectives outlined in the document. Most of the objectives are related to encouraging recruitment and retention of community support. However, there are some objectives that explore how education could be used to increase effective participation in projects, and in influencing the development and implementation of policy (Federal-Provincial-Territorial Stewardship Working Group, 2002, pp. 4 & 5 respectively).

In the October 2004 Speech from the Throne, the Government committed to developing an Oceans Action Plan, which was a companion document to Canada’s Oceans Strategy. The Oceans Action Plan focused on four thematic areas\(^{20}\), including the establishment of Marine Protected Areas (discussed later in this chapter) and the creation of Federal/Provincial/Territorial agreements on joint implementation of oceans management initiatives.

Canada’s Oceans Action Plan talks about bringing “sectors and citizens together using more open and transparent management and advisory bodies” (Government of Canada, 2005, p. 8) and, in relation to the Pacific North Coast specifically, establishing “open and collaborative oceans governance and management arrangements amongst governments at all levels, with stakeholders directly affected by those government decisions, and with citizens and interested parties who have an interest in decisions affecting that oceans area” (ibid, 2005, p. 15). However, it is only in relation to the Marine Protected Areas Strategy that there is reference to education. Here the Oceans Action Plan refers to communicating with Canadians, “including the development of a web-based mapping system of marine protected areas in Canada” (ibid, 2005, p. 17), and in providing opportunities for public education in National Marine Conservation Areas.

The National Marine Conservation Areas Program was established in 1986 under the National Marine Parks Policy. In 1994 a revised National Marine Conservation Areas Policy was released and in 2000 the National Parks Act enabled the establishment and

\(^{20}\) The four inter-connected themes are: International Leadership, Sovereignty and Security; Integrated Oceans Management for Sustainable Development; Health of the Oceans; and Ocean Science and Technology. (Government of Canada, 2005, p. 5 – Canada’s Oceans Action Plan)
management of National Parks in Canada, several of which have a marine component. However, it wasn't until 2002 that the Canada National Marine Conservation Areas Act was passed.

The National Marine Conservation Areas Policy is administered by Parks Canada and outlines the objectives of the National Marine Conservation Areas (NMCA) System and the criteria for selecting and assessing the feasibility of these sites (DFO website, 2007). In 1995, Canada's National Marine Conservation Areas System Plan, Sea to Sea to Sea, was released under the NMCA Policy. The plan guides the establishment of the National Marine Conservation Areas. It also provides a description of the 29 marine regions (chosen based on their biological and oceanographic features), which include:

- The Pacific Ocean\(^{21}\) (5 Regions);
- The Arctic Ocean (9 Regions);
- The Atlantic Ocean (10 Regions); and
- The Great Lakes (5 Regions).

However, it wasn't until 1998, that Canada's Federal Marine Protected Areas Strategy was released. This document provided the tool to establish a network of federal marine protected areas utilizing a cooperative and collaborative approach, under the lead agency of Fisheries and Oceans, Canada. The Strategy clarified the roles and responsibilities of the key federal departments and agencies with marine protected area mandates – Fisheries and Oceans, Canada, Environment Canada and the Parks Canada Agency.

The goal of the strategy was:

> The establishment of a network of marine protected areas, established and managed within an integrated oceans management framework, that contributes to the health of Canada’s oceans and marine environments. (Government of Canada, 2005, p. 3).

This included the following objectives, to:

- Establish a more systematic approach to marine protected area planning and establishment;

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\(^{21}\) Although five regions have been identified in British Columbia, none have yet been passed as NMCAs. However, Parks Canada is currently looking at making the Southern Strait of Georgia the nation’s third National Marine Conservation Area.
Enhance collaboration for management and monitoring of marine protected areas;
Increase awareness, understanding and participation of Canadians in the marine protected area network; and
Link Canada’s network of marine protected areas to continental and global networks.
(Government of Canada, 2005, p. 3).

The marine protected areas network is comprised of three core programs:

- Oceans Act Marine Protected Areas – these were established to protect and conserve important fish and marine mammal habitats, endangered marine species, unique features and areas of high biological productivity or biodiversity;
- Marine Wildlife Areas and Migratory Birds Sanctuary – established to protect and conserve habitat for a variety of wildlife including migratory birds and endangered species;
- National Marine Conservation Areas – established to protect and conserve representative examples of Canada’s natural and cultural marine heritage and provide opportunities for public education and enjoyment. In addition, several coastal National Parks include significant marine components.

(Government of Canada, 2005, p. 4)

**Oceans Act Marine Protected Areas:**

Fisheries and Oceans are progressing towards creating a network of marine protected areas under the Oceans Act. This is to ensure the protection and conservation of “important fish and marine mammal habitats, endangered marine species, unique features and areas of high biological productivity of biodiversity.” (DFO, 2005). According to the National Round Table on the Environment and the Economy (NRTEE), a federal agency created under the 1988 NRTEE Act, an area must first be identified as an area of interest before it can be designated an MPA under the Oceans Act:

Oceans Act MPAs are designated by regulation and therefore are not necessarily designated in perpetuity. Activities of various types will be permitted provided they are consistent with the conservation objectives set out in the site’s management plan, which is developed by Fisheries and Oceans Canada in cooperation with interested sectors. In addition, there is no process for Parliament to review MPA management plans or amendments to these plans. (NRTEE, 2004).

Government agencies have agreed that, in the Pacific Region, minimum protection standards for all marine protected areas (including MPAs) would exist. This includes the
prohibition of: ocean dumping; dredging; and the exploration for, or development of, non-renewable resources.

The Endeavour Hydrothermal Vents Marine Protected Area in British Columbia, Canada's first MPA created under the Oceans Act, was announced on March 7, 2003 (DFO, 2006). According to the management plan for this MPA education and outreach programs will be included as a priority in the management of the Area:

To this end, projects will be encouraged to engage Canadian schools, educators, and the general public in activities taking place in the Area. This may include first hand and virtual involvement by people from a broad variety of backgrounds (DFO, 2006)

This indicates that, although the Oceans Act does not specify education, the managers on the ground are interpreting the Act to ensure that education, interpretation and stewardship are being incorporated within the MPAs themselves. This reflects Government understanding that community involvement is essential to ensure the continuation of an integrated management plan that enables healthy coastal, marine and oceanic ecosystems.

**Marine Wildlife Areas and Migratory Birds Sanctuary:***

Environment Canada (Canadian Wildlife Service) is responsible for the administration of the two pieces of legislation that deal with the establishment of Marine Wildlife Areas (in Canada’s oceans outside the 12-mile limit), and National Wildlife Areas (within the 12-mile limit), as well as Migratory Bird Sanctuaries. These areas are designed to “protect and conserve habitat for a variety of wildlife including migratory birds and endangered species” (DFO, 2006).

The Migratory Birds Convention Act of 1994 gives the Canadian Wildlife Service of Environment Canada the jurisdiction to ensure the conservation and management of populations of migratory birds by protecting the birds, their eggs and nests from destruction, capture or use. The act protects coastal and marine habitats that are used by migratory birds for breeding, feeding and over-wintering by enabling the establishment of Migratory Bird Sanctuaries (Coastal Shore Stewardship, n.d.). Although there is no mention of education within either the Act or the Migratory Bird Sanctuary Regulations.
(1994), most established sanctuaries provide educational programs. For example, the George C. Reifel Migratory Bird Sanctuary in British Columbia offers a broad educational program to school groups and the general public.

The Canadian Wildlife Service is also authorized to establish National and Marine Wildlife Areas on land or sea under the Canada Wildlife Act (197322). The aim of the act is to protect nationally significant habitat areas, including the conservation of marine areas that are nationally or internationally important for all wildlife, including migratory marine birds, species-at-risk, and other wildlife of national significance (Coastal Shore Stewardship, n.d.). This aim includes promotion of interpretation and research.

Currently there are no marine wildlife areas established under the Canada Wildlife Act, although plans are in process to create the first MPA under this Act at Scott Islands Provincial Park in British Columbia.

National Marine Conservation Areas:
Parks Canada works towards developing National Marine Conservation Areas (NMCAs) in order to protect and conserve for all time “representative examples of Canada’s natural and cultural marine heritage and provide opportunities for public education and enjoyment” (DFO, 2006).

NMCAs are multiple-use MPAs which means they have both fully protected zones as well as zones for exploration and extraction or ocean dumping. In order to establish a NMCA, and develop management plans for the various pertinent sites, a great deal of consultation is required. These management plans must be tabled in Parliament and the sites established by order in council. Once established, NMCAs are held in perpetuity. (NRTEE, 2004).

Canada’s National Marine Conservation Areas Act, passed in 2002, gives authority to the Minister of the Environment to establish National Marine Conservation Areas with the aim

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22 This Act was amended in 1994 to allow for the creation of marine protected areas within Canada’s Exclusive Economic Zone
to protect and conserve marine areas that are representative of Canada’s ocean environment. The act provided the formal, legislative framework for the National Marine Conservation Areas System Plan. It also required that before an area was established extensive public consultation was carried out and that a management advisory committee was created for each national marine conservation area. This would, thereby, provide “continued stakeholder participation in the formulation, review and implementation of management plans” (Parks Canada Agency, 2004). One of the objectives of this act is to encourage the protection and conservation of these marine areas for the public’s benefit, education, understanding and enjoyment (coastal shore stewardship, n.d.).

National Marine Conservation Areas are “marine areas managed for sustainable use and containing smaller zones of high protection. They include the seabed, the water column above it and they may also take in wetlands, estuaries, islands and other coastal lands”. (Parks Canada, 2006).

According to Parks Canada, these areas are protected from a range of activities including: ocean dumping, undersea mining, and oil and gas exploration and development. Traditional fishing activities are, however, permitted. The management of these areas requires the collaboration of a variety of partners like provincial or territorial governments, other federal departments, regional stakeholders, coastal communities, and Aboriginal peoples.

The NMCA Program clearly identifies the need to “provide for marine interpretation and recreation” (Parks Canada, 2006). As such, one of the selection criteria for NMCAs includes: “opportunities for public understanding; education and enjoyment”, while the NMCA Policy outlines the guiding principles for encouraging these attributes. For example, point 4.2.1 states:

Parks Canada will cooperate with others in developing marine conservation area interpretation and public education programs that will provide visitors and all Canadians with accurate information of the area’s marine ecosystems, key environmental issues and the various programs that have been implemented for the protection and wise use of these ecosystems (Parks Canada, 2006).
Federal Government Legislative Tools:

The Canadian Federal Government has a number of legislative tools in order to develop marine protected areas (DFO, 2006 – Marine Protected Areas home page), which might explain why the term “marine protected area” applies to a broad range of formal designations that provide long-term legal protection for the seabed, water column and plants and animals and their habitats. MPAs can range in size and level of protection, from reserves totally closed to consumptive uses to multiple-use areas that allow for human uses compatible with the MPA’s conservation objectives. (NRTEE, 2004).

The Acts that underpin these various parks provide specific definitions for Marine protected areas. For instance, the Oceans Act defines a Marine Protected Area “as an area of the sea that is designated for special protection for the conservation and protection of:

- Commercial and non-commercial fishery resources, including marine mammals, and their habitats;
- Endangered or threatened marine species, and their habitats;
- Unique habitats; or
- Marine areas of high biodiversity or biological productivity (Oceans Act, s. 35)

These various federal programs also share a common objective:

to further conservation and protection of living marine resources and their habitats. By coordinating the policies, programs and prospective sites amongst the different federal agencies, the integrity and health of Canada’s estuarine, coastal and marine waters will be better maintained. (DFO, 2007)

Assessing the effectiveness of these strategies, however, is perhaps not as simple as one would imagine. For instance, in 2001 a parliamentary review by The House of Commons’ Standing Committee on Fisheries and Oceans (Standing Committee) found that the Oceans Act was fundamentally sound. It also concluded that although much had been done, there were still key elements of the Act that had not been as fully implemented as they could or perhaps should have been. (Chircop & Hildebrand, 2006, p. 19)

In September, 2005, the Commissioner of the Environment and Sustainable Development undertook an audit on Fisheries and Oceans Canada and found that they had not been successful in using the Oceans Act to “protect and develop our oceans in a sustainable way” (Office of the Auditor General of Canada, 2005). The audit found that no oceans
management plans had been finalized and that little progress had been made in the establishment of marine protected areas. Only two out of a possible 13 marine protected areas that had been identified between 1998 and 2000 had been established by DFO. The poor results were partly attributed to fisheries issues dominating the broader oceans agenda.

4.3.2 British Columbian Coastal Legislation

The Constitutional Act of 1867 (later ratified by the Constitutional Act of 1982) gave exclusive legislative authority to the Canadian Parliament for the “sea coast and inland fisheries” (Department of Justice, 1867). This included the power to override provincial actions where activities on provincial land affected marine ecosystems and therefore where it was necessary to protect fish.

In July, 1871, British Columbia became the sixth province of the Dominion of Canada. As part of the British Columbia Terms of Union (Anon, 1871, para. 5e; Maton, 1998) which provided that “Canada will assume and defray the charges for the following services… Protection and Encouragement of Fisheries”, control over British Columbia’s fisheries were handed over to the Federal Government. However, the Province retained governance and ownership over the “waters, seabed and subsoil of the area enclosed between Vancouver Island and the mainland” (Chircop & Hildebrand, 2006, p. 27).

The Fisheries Act (one of the oldest and strongest federal statutes in Canada) was passed in 1868 and charged the Minister of Fisheries and Oceans Canada with managing, protecting and conserving fish and fish habitat on behalf of the people of Canada. It is administered by DFO and Environment Canada and is aimed at regulating “the harvesting and management of fisheries and the discharge of pollutants into fish bearing waters” (Coastal Shore Stewardship, n.d.). This act applies to all lands whether they be public, private or aboriginal. Although this power seems all encompassing it has its limitations. For instance, authority is:

- limited by related provincial powers to regulate streamside activity. Another limitation relates to the fact that only fish habitat that is part of or contributes to a fishery is protected by law. To be protected, the fish that live in the habitat or depend upon that habitat directly or indirectly must
contribute to a fishery. (Peterson et al, 2005, p. 8).

It was this act that identified Fisheries and Oceans, Canada as the key authoritative agency in regards to the aquatic and marine environment.

Overall there are three federal government departments that are involved in the conservation and protection of the coastal and marine environment and the flora and fauna that are part of this ecosystem – Environment Canada, Parks Canada, and Fisheries and Oceans, Canada. These three agencies are often called upon to work cooperatively in the discharge of Acts, policies and strategies.

Provincially, there is one main Ministry charged with environmental protection and conservation in British Columbia – the BC Ministry of Environment. This Ministry is an umbrella for a number of agencies that care for the environment and for the administration of the provincial legislation. The Acts and Policies that exist at the Provincial level are, again, quite complex given the interaction with the Federal and local levels.

BC Parks\textsuperscript{23} is one such agency whose authority is to protect significant natural places within the province’s “Protected Areas System”. The agency’s authority stems from three legislative documents – the Park Act, the Ecological Reserve Act and the Environment and Land Use Act (British Columbia Parks, n.d.).

\textit{Park Act}

The 1965 revised British Columbia Park Act is designed to protect:

- Representative examples of terrestrial and marine diversity, and recreational and cultural heritage;
- Special natural, cultural heritage, and recreational features.

It is also encourages the provision of opportunities for public recreational use. However, there is limited reference to education in this act (Park Act, RSBC 1996).

\textsuperscript{23} BC Parks and Protected Areas Branch is part of the Environmental Stewardship Division of the Ministry of Environment. (BC Parks, no date – organizational structure website)
**Ecological Reserve Act**

In 1971 the Ecological Reserve Act was approved which gave permanent protection to areas established under this legislation. According to the BC Parks website, the Ecological Reserve Act’s main purpose is to reserve Crown land for ecological purposes. The Ecological Reserves that are established under this Act are done so via two means: a) by order in council under the Ecological Reserve Act; or b) by inclusion in schedules to the Protected Areas of British Columbia Act (BC Parks, n.d.). As the legislation for this initiative is very restrictive (for example all extractive activities are prohibited), reserves that are created in this way are considered to be the most highly protected. (Ministry of Env., n.d.).

According to the BC Parks website, ecological reserves are established for a number of reasons including “scientific research and educational uses associated with the natural environment” (BC Parks, n.d.).

**Environment and Land Use Act**

The Environment & Land Use Act (RSBC 1996) is “a broad piece of legislation which empowers a Land Use Committee of Cabinet to ensure all aspects of preservation and maintenance of the natural environment are fully considered in the administration of land use and resource development” (Jamieson and Lessard, 2000). The Act authorizes the Committee “to establish and recommend programs designed to foster increased public concern and awareness of the environment” (BC Government, 1996, sc.3a).

**Coastal Zone Position Paper**

The British Columbia Coastal Zone Position Paper was released in 1998 and was designed to serve as BC’s contribution to the development of Canada’s Oceans Strategy (Government of British Columbia, 1998). In this document, the BC government sets out their vision for coastal zone management. This includes leadership in education, planning and protected areas establishment, as well as adopting a coastal zone management approach.
4.4 Comparisons and findings

There are many diverse acts, plans, strategies and policies that exist at the various levels of government in Australia and Victoria, and in Canada and British Columbia. This significantly contributes to the complexity surrounding community groups’ interactions with government agencies and marine environmental decision making bodies. The marine educators’ awareness of the pertinent legislative and governance documents (and their input into them) powerfully positions them to help the public make sense of this web. In doing so, the marine educators take on the role of interpreter of the governance documents, and of mediator between these policies and, arguably, the corresponding policy makers, and the community groups.

This section compares the laws, jurisdictions and other governance documents that have been identified by the marine educators in both countries as affecting their practice, and flags the place of education within these.

4.4.1 Laws

The Victorian Marine Educators interviewed for this thesis identified the following legislation and guidelines influenced their programs the most.

- At a Federal level: Australia’s Oceans Policy, the South East Marine Plan, and the Coast Care Initiative.
- At a State level: Coastal Management Act, The Coastal Strategy, and Coast Action / Coast Care.

Their Canadian counterparts identified:

- At a Federal level: Canada’s Oceans Act, and Canada’s National Marine Conservation Areas Act.
- At a Provincial level: None were mentioned.

It is noteworthy that most of these laws were proposed at about the same time in both countries, indicating a co-evolution in the governance of the coastal, marine and oceanic environments. Arguably, this is a result of numerous nations signing the United Nations Convention on the Law of the Sea (UNCLOS) in 1982. However, it wasn’t until 1994 that
UNCLOS came into force\textsuperscript{24}, giving the various countries time to instigate laws that were consistent with the international convention. Hence a significant proportion of UNCLOS provisions are reflected in both Canadian and Australian legislation (Fisheries and Oceans, Canada, 2007; White, 2007).

In 1992, Chapter 17 of Agenda 21 was adopted by a number of summit delegates. Agenda 21 proposed a plan for achieving sustainable development in the 21\textsuperscript{st} Century, while Chapter 17 is specifically related to oceans, and outlines the principles and objectives for oceans management. In response, Canada produced the Oceans Act and Canada’s Oceans Strategy in order to meet their international sustainable development commitments and implement the “Agenda 21 principles of sustainability, integrated management, and precaution” (Fisheries and Oceans, Canada, 2007). In Australia, the Oceans Policy and regional marine plans were established (Boyd et al, 2005b). Unlike Canada, Australia’s Oceans Policy was not started with oceans legislation. Instead it originated with the release of the national document (that is, Australia’s Oceans Policy) (Commonwealth of Australia, 1997). Development of the policy was based on a process of consultations with different levels of government and the community (Repetto, 2005). However, legislation for the oceanic environment in Australia came later and after lobbying on behalf of key stakeholder groups.

Canada and Australia are considered to be international leaders in the development of oceans policy and in pioneering integrated ocean management (Boyd et al, 2005a). There are several similarities – and differences – between the approaches adopted by Canada and Australia to governance related to the coastal, marine and ocean environments. Boyd et al argue that some of the similarities include:

\begin{itemize}
  \item federal planning exercises were carried out without certainty on how plans would be “given teeth”;
  \item fragmented institutional and statutory responsibilities persist at the national and provincial/state levels; there is still only a limited scientific understanding of marine ecosystems; and political and economic realities, including vested interests, continue to hinder progress (Boyd et al, 2005a).
\end{itemize}

\textsuperscript{24} This 12 year delay was predominantly due to opposition to Pt XI of the Convention by the main shipping and sea-power states. According to the literature “(t)his opposition was eventually resolved by a separate agreement altering the terms of Pt XI, prior to UNCLOS coming into force” (White, 2007, p. 24).
Although there are similarities, there are also obvious differences between Australia and Canada legislation. These include:

- Australia facilitated integrated planning with a policy, while Canada established a legislative foundation for planning through oceans legislation;
- The Department of the Environment, Water, Heritage and the Arts has the lead role in Australia, while Canada has allocated this responsibility to the Department of Fisheries and Oceans (which is potentially problematic given that the one agency is responsible for both the conservation and commercialization of the fishing industry and the marine environment);
- In Australia, there is greater constitutional certainty regarding offshore jurisdiction between national and state/provincial governments (Boyd et al, 2005b; Rothwell & VanderZwaag, 2006).

This last point is important as planning for (and implementing) integration is complicated in both countries due to the multiple agencies that are involved in these environments. Legislation and governance can be difficult due to the variation in jurisdiction as a result of the interplay between the vertical levels of governance as well as the horizontal interactions that must occur between inter-agency jurisdictions.

4.4.2 Jurisdiction

There are a number of significant barriers to advancing marine/coastal conservation (and education) in both Canada and Australia. However, one of the most significant barriers is the fragmentation and spread of responsibility for these environments across various layers of government.

In Australia, States and Territories have legal authority of the waters up to three nautical miles out. In Victoria, this includes: the sea-bed of the coastal waters and any sea within the limits of Victoria; and the water column (Victoria Government, 1995). Legislative authority for these areas lies with the Minister for Water and Climate Change, although management authority is given to the (now) Department of Sustainability and Environment (Victorian Government, 2002; 2008).
Given that one-third of the coastal Crown land in Victoria is managed by Parks Victoria under the National Parks Act (1975), (as well as the large number of agencies with an interest in managing the coastal and marine areas and their resources) a degree of collaboration is essential. This has predominantly been established through the Victorian Coastal Strategy (2008) that encourages integrated coastal management in the State. In her talk to the Ocean Policy Summit 2005, Donna Petrachenko\(^{25}\) highlighted that Australia had learnt the need for full engagement of sector-specific departments and agencies.

In Canada there appears to be slightly more uncertainty in relation to provincial versus federal jurisdiction and administration. According to a ruling that the Supreme Court Canada made in 1967, jurisdiction for seabed resources inside harbours, bays and estuaries were provincial, while everything outside these areas were federal. In 1984, the same court ruled that the Strait of Georgia is under British Columbia jurisdiction. However, if the enclosed bay is a public harbour, under the Constitution Act (1867) its bed is federal (Nichols, Monahan and Sutherland, 2000)

So while the Canadian Federal Government has exclusive legislative authority regarding all waters and seabed areas west of Vancouver Island and the Queen Charlotte Islands, the waters and ocean floor between Vancouver Island and the mainland are within British Columbia’s jurisdiction. However, jurisdiction over the waters and sea floor between Vancouver Island and the Queen Charlotte Islands and the waters and sea floor landward of the Queen Charlotte Islands is still uncertain (Bailet et al, 2006, p. 103).

Although various agreements and memoranda of understanding have been signed by federal and provincial authorities to minimize disputes, integrated management of these environments is still delayed due to conflicting jurisdictional governance. Because of the difficulties in circumnavigating these tensions in order to develop an agreed national approach to CZM, the Canadian federal government moved ahead in the area it had sole jurisdiction, that is the ocean. As the oceanic integrated management approach progressed and developed, negotiations and work with the province and key stakeholders began anew in order to bring the coastal zone into the IM process (Ricketts & Harrison,

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\(^{25}\) First Assistant Secretary, Marine Division, Department of the Environment and Heritage, Australia.
2007). With a coherent plan for Integrated Coastal and Ocean Management (ICOM) in place, combined with the country’s ocean-to-shore perspective on Integrated Management for Large Ocean Management Areas, Canada was able to implement an integrated, multi-stakeholder management strategy (Ricketts & Harrison, 2007).

In summary, both Australia and Canada have problematic structures of jurisdiction, requiring multi-level decision making in relation to the coastal/marine/oceanic environments. For instance, boundaries in coastal areas are often overlapping which leads to confusion. Monahan and Nichols (1999) give the example of a moored raft “that is under one jurisdiction while floating but under a different jurisdiction when the tide goes out and the raft sits on the exposed sea floor”. Both countries, however, are attempting to implement strategies to overcome these issues.

Australia is learning from Canada in this, as research into the development and effectiveness of identifying marine boundaries (or marine cadastres) is further along in Canada (Sutherland and Nichols, 2006).

4.4.3 Historical drivers that impact on the legislation

Overall, Australia and Canada have similar legislation, however, it is not so much the differences in legislation that is important for this thesis, but what drives the legislation.

There are some factors that are globally similar, while other factors driving the various government agencies (and the resultant legislation) are different for each country – and even each state and province. These drivers are often historical, although there are some that have become significant influences more recently.

For example, some common international factors that have an impact on Canadian and Australian legislation include environmental, economic and social factors. Such as:

- International pressure to implement mechanisms to support sustainable development through programs like Agenda 21;
- The world’s fisheries are in serious decline;
- Increased pollution from land-based and sea-based activities;
- Alteration and destruction of habitats and ecosystems;
• Climate change resulting in sea level rises, changes to tides, etc.;
• Rapidly increasing recognition of the marine environment as an economic resource;
• Increased competition for control over natural resources rich marine areas (for example for oil and gas supplies);
• Increased use of the coastal and marine environment for social activities (includes increased demographic move to coast); and
• Growing pressure to recognize rights of indigenous people to land and sea.
(Fisheries and Oceans, 2007).

Other impacts are relevant to specific countries. For instance, Australia’s climate ranges from temperate to tropical while Canada’s can range from temperate to polar. Australia does not share coastal shores with any other country. As Yurick (1995) points out, this does lead to different situations in factors that impact on legislation.

At the outset, two key distinctions should be noted between the Canadian and Australian situations. The first is that Canadian seas (particularly those to the North) are ice-covered for a proportion of the year, a key consideration in Parks Canada’s regional definition efforts. The second is that, unlike Australia, Canada’s marine regions are delimited to some extent by her political geography. Australia’s circumcontinental seas place her in a unique situation (Yurick, 1995).

Canada also has an extensive fisheries industry that has an enormous cultural and economic impact. For instance, the fisheries industry contributes significantly to the Canadian Gross National Product, particularly the salmon industry. Canadian provinces tend also to be more financially independent due to the legislative rights they have to marine resources, for example oil and gas that Australian states and territories do not have, given these resources are within federal jurisdiction.

Many Canadians see themselves as being part of a maritime nation with strong connections to the coastal shores (Fisheries and Oceans, 2007). This cultural identity is built more around the economic use of the marine resources than that of the Australian cultural identity. For instance, there is a strong fishing culture that exists within Canada
(particularly within British Columbia), whereas the Australian coastal/marine culture is built more upon a recreational mindset.

A significant contributor to this difference in cultural understanding is undoubtedly the weather that each country experiences. In Australia the temperate weather encourages beach related activities that cannot be indulged in the sometimes iceberg infested waters off Canada. The beach culture that underpins the Australian communal identity is therefore missing in Canada.

It could, in fact, be claimed that significant driving factors for legislation is this underlying sense of culture: for Australia, it is a beach or coastal culture; for Canada, it is fishing or a marine & oceanic culture. Arguably, the value that the stakeholder places on various aspects of the environment (which is informed by the manner in which the habitat is utilized by the individual(s), and the degree to which they connect to a place as a result), correlates to the degree of pressure they are willing to exert on the government decision and policy makers.

4.5 The place of education within the legislation

A renewed interest in the role of the community in marine and coastal issues has developed in recent years (Binkley et al, 2006). As a result both Australian and Canadian legislation have included methods to encourage community involvement and education within it. Sometimes this is very minimal and sometimes it is quite explicit, though this explicitness tends to be more at the on-ground level of legislation and policy making. The terms that are used to describe community involvement and education, and the degree of education that is implied, varies between the countries.

The tables below show the legislation highlighted and discussed in this chapter and indicate the degree of presence of an educational perspective within it. The tables also indicate if community involvement is encouraged within the documents and if the marine educators interviewed had listed the legislation as influencing their programs. This table also shows how the strategies shape the context within which these marine educators operate.
### Table 4.2: The presence of education and community involvement within Australia and Victoria’s legislation and its perceived influence on marine education programs

<table>
<thead>
<tr>
<th>Legislation / Education</th>
<th>Government</th>
<th>Year</th>
<th>Presence of Education</th>
<th>Community involvement</th>
<th>Interviewees highlighted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coasts and Clean Seas Program</td>
<td>Federal</td>
<td>1997</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Australia’s Oceans Policy</td>
<td>Federal</td>
<td>1998</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Coastal Management Act</td>
<td>State – Victoria</td>
<td>1995</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Victorian Coastal Strategy</td>
<td>State - Victoria</td>
<td>2002</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Coast Action Strategy</td>
<td>State - Victoria</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Table 4.3 The presence of education and community involvement within Canada and British Columbia’s legislation and its perceived influence on marine education programs.

<table>
<thead>
<tr>
<th>Legislation / Education</th>
<th>Government</th>
<th>Year</th>
<th>Presence of Education</th>
<th>Community involvement</th>
<th>Interviewees highlighted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada Wildlife Act</td>
<td>Federal</td>
<td>1973</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Migratory Birds Convention Act</td>
<td>Federal</td>
<td>1994</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Oceans Act</td>
<td>Federal</td>
<td>1996</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>National Parks Act</td>
<td>Federal</td>
<td>2000</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
As can be seen from Tables 4.2 and 4.3, a number of the strategies and policies provide for education and call for community participation. However, much of the education and training provided is directed at the land managers rather than the public, particularly in the older versions of the documents. More recent policies and strategies provide for public education that goes beyond simple exercises in awareness-raising, some even calling for public participation. The 2008 Victoria Coastal Strategy is a good example of such a policy in that it highlights and emphasizes community involvement in the marine environmental decision-making processes as well as their implementation (VCC, 2008).

In Australia, most coastal management policies at both a Federal and State level, provide reference to education. However, these references often provide general guidance for education rather than focusing on specific, detailed initiatives (Wortman et al., 2006). Similarly community involvement in coastal and marine management is recognised but does not have clear directives as to how these elements are to be implemented.
This is evident in Canada’s Oceans Strategy where education is mentioned infrequently and educational objectives are not provided. However, education is considered to be a embedded within the document as a component of ‘capacity building’. In the Canada’s Oceans Strategy glossary of terms, Capacity building is defined as: Enhancing the skills of people and the ability of institutions to participate in resources management through education and training. (Canada’s Oceans Strategy, 2002, p. 36).

Some documents do have clear objectives. In Australia, for example, the Victorian Coastal Management Act (1995) and the Victorian Coastal Strategy (2002) both have objectives for educational and community involvement clearly stated within them. The education component in both of these documents gives comprehensive strategies for both formal and community education. There is also recognition of the vital role of the community’s contribution to coastal management and planning, both through active participation and involvement in local management plans and through the services provided by many public groups, including life-saving, (Victorian Coastal Strategy, 2002, p. 8).

An understanding of where education sits in legislation and other governance documents is important for situating the marine educators. Reviewing the key government documents pertaining to the marine environment and identifying the perceived role of education and community involvement stated within them provides an insight into how governments and their agencies view education and encourages and empowers the community to take action. This is the context within which the marine educators operate.

### 4.6 Chapter Summary

In this chapter I have looked at legislation in both Victoria, Australia, and in British Columbia, Canada, to show the complex patterns of policy and legislation governing marine ecosystems, which is the context, and the legal culture within which the marine educators work. I have examined where education fits within the legislation, and where government sees education as fitting.

Future chapters will look at how and where the marine educators fit within this legislation and what drives them. Before exploring the relationship between the marine educators and these policy and legislative frameworks, and their role and beliefs in regard to the
place of education within these, it is vital to know who these people are, where they are coming from and what drives them to take on the mantle of community educator. The next two chapters explore how their ethics and value systems originate and what informs their understandings of the world in general, and the marine environment in particular.

To begin with, the marine educators that have been interviewed in this research are introduced in the next chapter – Chapter 5.
Chapter 5

The Master and Commanders: The Marine Educators

Oh, it was sweet
To hear that seaman tell such wondrous tales…

(William H. Davies, 1975)

Introduction

In the process of producing data for this thesis, the stories of the individual marine educators have been predominantly sought through an interview process. As discussed in the previous chapter, this approach is informed by a narrative methodology that enables the interviewee’s story to be reported, re-told and interpreted. Patton (2003) explains that:

(we) interview people to find out from them those things we cannot directly observe. The issue is not whether observational data are more desirable, valid, or meaningfully than self-report data. The fact is that we cannot observe everything. We cannot observe feelings, thoughts, and intentions. We cannot observe behaviours that took place at some previous point in time. We cannot observe situations that preclude the presence of an observer. We cannot observe how people have organized the world and the meanings they attach to what goes on in the world. We have to ask people questions about those things. (Patton, 2003, p.340).

In interviewing the Marine Educators a great deal of information was gained, including storied information about their self-perceived roles in the field of coastal and marine education, their past experiences, and where they see the future of the marine and coastal environment. All of this information is relevant to contextualize the interviewees’ beliefs and understandings and to gain insight into what underpins their perceptions.

This chapter explores who the key players are in this research study, briefly investigates how they came to be where they are and attempts to present their stories, as constructed
from the interviews. In doing this I reflect on how they see themselves and their personal contributions to the field of marine education.

### 5.1 Profile of Participants

The participants were chosen based on word of mouth recommendations from either other marine educators or from environmental educators (see previous methodology chapter for a further description of how this was undertaken). The aim was to identify people who were active within the field and were considered to have significantly contributed to the area of coastal/marine education.

**Table 5.1 Table listing the marine educators interviewed, their location and their positions at time of interview(s)**

<table>
<thead>
<tr>
<th>Marine Educator interviewed</th>
<th>Location</th>
<th>Position(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calvin Parsons</td>
<td>British Columbia, Canada</td>
<td>Vice-Principal (Ret); Lecturer, University of Victoria, British Columbia</td>
</tr>
<tr>
<td>Susan Staniforth</td>
<td>British Columbia, Canada</td>
<td>Consultant</td>
</tr>
<tr>
<td>Rick Kool</td>
<td>British Columbia, Canada</td>
<td>Associate Professor, Royal Roads University, British Columbia</td>
</tr>
<tr>
<td>Gloria Snively</td>
<td>British Columbia, Canada</td>
<td>Professor, University of Victoria, British Columbia</td>
</tr>
<tr>
<td>Patrick O’Callaghan</td>
<td>British Columbia, Canada; Victoria, Australia</td>
<td>Vice President of Conservation and Education, Vancouver Aquarium, British Columbia; Consultant, Victoria, Australia</td>
</tr>
<tr>
<td>Geoff Wescott</td>
<td>Victoria, Australia</td>
<td>Professor, Deakin University, Victoria, Australia</td>
</tr>
<tr>
<td>Mark Rodrigue</td>
<td>Victoria, Australia</td>
<td>Marine educator, Queenscliff Marine Discovery Centre, Victoria, Australia; Marine Coasts and Catchments Officer with Parks Victoria, Victoria, Australia</td>
</tr>
<tr>
<td>Harry Breidahl</td>
<td>Victoria, Australia</td>
<td>Consultant</td>
</tr>
</tbody>
</table>
Not surprisingly, all of the participants have a science degree of some description, generally within the ecology field, and seven of the eight interviewed had an education qualification, either at an undergraduate or a masters level. All, however, had been, and are, recognised by their peers as making a significant contribution to coastal/marine education.

5.2 The Canadians:
The five marine educators interviewed in Canada were from different areas in the education field: schools; universities; government departments; private consultancies; and public aquaria. These are their stories:

5.2.1 Calvin Parsons
Prior to our first interview in 2005, Calvin Parsons worked as a Vice Principal at a local school where he taught grade 6 and 7 students. In this role he incorporated environmental studies that included marine and coastal units into the curriculum at every opportunity. Programs like the Jason Project, Orca-live and various different ‘Watch' programs became an integral component of the school curriculum.

It’s quite easy. You just have to be motivated and always search for things like worm watch  [S1CP:22]

Just two weeks prior to this conversation, Calvin had the opportunity to transfer to another school and, in keeping with his professed passion for the environment and education, chose to move to a school that had a high level of commitment to teaching environmental studies, and whose staff were closely involved with community programs such as ‘Streamwatch'.

At this point in time, Calvin was one of the main people in British Columbia involved in a popular community education program initiated by the Department of Fisheries and Oceans (DFO) called ‘Shorekeepers'. Shorekeepers is a community program based on the ‘Shorekeepers' Guide', a sampling and training protocol developed and tested by the Pacific Region researchers of Fisheries and Oceans Canada, and designed to survey intertidal habitats and associated biota in British Columbia. The aim of the program is to
train non-professional community members “in defensible but practical methods to allow determination of whether or not indigenous marine ecosystems, and specifically their non-exploited renewable resources, are in fact being sustained” (Jamieson and Smiley, 2003). This information is then added to the scientific database from which coastal monitoring and management strategies are based.

In 1999 and 2000, as a collaborative pilot project with Fisheries and Oceans Canada, Calvin adapted this protocol by redesigning it so that grade 6 students could be trained to take part in collecting data that could be used by scientists. This was quite a step forward with the innovation of elementary students being trained to collect scientifically defensible data.

The process of ensuring an effective method of training students (and teaching staff) to collect data that would be accepted by the Shorekeepers community and included in the scientific database, took Calvin over three years, and were undertaken as part of his Masters studies. The steps that were taken, the issues that arose, the strategies used to overcome these hurdles, and recommendations for future Shorekeepers programs (and, in fact, other environmental monitoring projects) were discussed in depth in Calvin’s minor Master’s thesis (Parsons, 2002). In this document, Calvin described his achievements thus:

I set out to find a method to include students in a direct, authentic, hands-on, outdoor environmental monitoring activity. I succeeded in modifying an established scientific protocol to enable grade 6 students to provide meaningful data to the scientific community. (Parsons, 2002, p. 60)

It was through Calvin’s efforts that a pilot Junior Shorekeepers program was created. By re-designing the original program, Calvin established and trialled the Junior Shorekeepers pilot with his students from the Margaret Jenkins Elementary School at Ross Bay Beach. This pilot program proved successful and was duly adopted and rolled out by Fisheries and Oceans Canada. The data produced by the children (or Junior Shorekeepers) were specially coded and included into the Shorekeepers database, producing formally verified data usable by scientific and community researchers. According to Fisheries and Oceans Canada:
The goals of the Junior Shorekeepers pilot are at least three-fold. First the program is aimed to create local intertidal knowledge amongst students; second to create a stewardship ethic among them and, in turn, their family and friends; and third to produce scientific data accessible and useful to scientists and the community to monitoring the health of intertidal ecosystems. (Parsons, 2002, p. 82)

Over time government funding for environmental education outreach programs was reduced. Consequently the number of staff (and allocated hours) to run these programs was decreased causing an educational and leadership void that was filled by enthusiastic and motivated volunteers - of which Calvin was one. Accordingly, Calvin’s role, and therefore his contribution to the field, increased significantly. At the time of our interview, he was the only person doing the Shorekeepers program on Vancouver Island and was the sole trainer in British Columbia for training the DFO staff in this particular community educational program that the Canadian Government categorizes as Citizen Science.

At the time of our initial interview, Calvin was actively providing leadership and advice for other environmental educators. He described this role as one of a mentor by supporting others in the field either by assisting them with presentations, sending them resources that he found, or by participating in their programs. In this role, he worked very closely with a group of other environmental educators that together looked at the catchment perspective and, through this, worked with various different watch or keeper programs to provide an eco-experience for their respective classes. For example, some of the group were involved in Streamkeepers, a popular community program designed to involve the public in monitoring and managing the large number of streams and rivers in British Columbia. In one example, students were taken to a natural setting and, in groups, rotated through three stations, including a salt water lagoon and a stream system, thereby gaining a catchment perspective of the environment.

Calvin also spoke of his work with the University of Victoria on a CETUS Project (Centre for Excellence in Teaching and Understanding Science). This project helped to “provide teachers with the tools they need to develop a more scientifically literate populace and to inspire Canada’s next generation of scientists” (Blades, 2003; University of Victoria, 2003). As part of this, funding was provided to release teachers to work on their science lessons.
As an educator, Calvin described how he promoted as many environmental activities as he could, thereby ensuring these activities he did with his students had a high profile. Through this promotion, Calvin encouraged the parents, the community and the children to be involved in the activities.

But the other thing is making a high profile of the activities that I do do with the kids, where I get lots of positive feedback from the parents when they’re doing a beach study or something like that. Anything to do with the environment I get lots of feedback from the parents. It’s really positive because they really like that. So I see my role as promoting as many environmental things as possible just to get the parents and the community and the kids involved in what we’re doing. [S1CP: 72]

Calvin demonstrated a commitment to the marine and coastal environment in the programs he chose to get involved with and in the reputation he gained for himself as a key marine and coastal educator in Victoria, British Columbia. It was this reputation and the contribution he made to the marine education field that made him an obvious choice to include in the study.

This passion and commitment, arguably, stems from Calvin’s formative years when, growing up in a rural setting (albeit some distance from the ocean), he was able to make connections to the natural world that children raised in a more urban environment may not have (see chapter 6 for discussions on prior life experiences). He talked about when, in his teenage years, he was old enough to have his own transport he was able to discover the coastal places that inspired a long-term love affair with this ecosystem.

… I remembered as a teenager when I first got my motorbike I’d often go to the beach, but not the sandy beaches with all the babes in bikini’s, I’d go to these rocky beaches that, to me, are much more interesting. And I was able to get around to remote beaches on my motorbike and just walk these beaches … After that I just got in a classroom for the environment somehow… [S1CP: 56]

From his schooling, it appears Calvin was drawn into the world of marine ecology, studying for a Bachelor of Science and eventually working in the Queen Charlotte Islands for a number of years as a teacher. It was here where almost 30 foot tides were a regular occurrence and living on the beach was part of the lifestyle, that he took the opportunity to learn from the local native population who, (he perceived), were experts in their local eco-
system, and he talked about being able to take this knowledge away with him to later apply it in future educational programs.

Calvin’s life as an environmental educator began when, after undertaking research in the Yukon Tundra, he worked as a Park Naturalist in Victoria. He described this as being the time that he realized that children who came in on school tours knew nothing about the environment:

…school groups would come in for their school tours and I thought “boy, these guys are so dumb; they don’t know anything about the environment”. So I went into teaching and so for a good period, almost 20 years probably, I just focused on teaching - that, and the environment. [S1CP: 6]

He spoke about his increased involvement in the environmental movement over the years, and how he eventually took this passion and commitment into his work as a teacher.

I’m with a group of other eco freaks that I’m sort of the marine connection and they’re the river guys. And it’s quite neat cause we’re almost… where a stream starts now and where it empties into the ocean, you’ve got this whole group of people that have expertise in all these areas, so it’s quite unique to have that. The Streamkeeper guys, they do very little with the ocean stuff and I get very little Streamkeeper stuff. So in answer to your question, yeah, my personal background is the reason I’m still doing marine stuff. [S1CP: 26]

Like most marine educators, Calvin sees himself as working towards what he perceives marine and coastal education is trying to achieve: the preservation of our shorelines; educating students to be future leaders; educating parents through the students; and encouraging people to adopt daily practices that don’t harmfully affect our environment. His efforts to achieve this translated into teaching his students about the conservation values he holds, by volunteering with shoreline clean-ups and education projects, and by supporting groups that promote environmental awareness.

Calvin retired from his position of vice-principal in an acclaimed and environmentally conscious elementary school, and from public school teaching altogether in 2007. For the next two years he taught in the Education Department at the University of Victoria in British Columbia, and although he plans to continue teaching at a tertiary level in environmental education, he was last sighted in Maui witnessing the humpback whale migration.
5.2.2 Susan Staniforth

As an established and reputable consultant running teacher training programs in environmental education, marine education and marine ecology, Susan Staniforth described how she had the opportunity to work with various foundations, environmental groups, the BC government and with local Universities.

It's a bit of a jack of all trades. My friend… calls me a bio prostitute. [S1SS: 40]

When we first spoke, she saw her role as a consultant as allowing her to work within her preferred area of environmental education, and where possible, to follow her interest in working in and around marine and coastal issues.

At the time of our interview, Susan was working on a national project called “Green Street”, a program designed to engage students and teachers in environmental learning and sustainability education. The project was created and funded by the J.W. McConnell Family Foundation, a large philanthropic group that funded Green Street “in hopes of fostering a sense of environmental stewardship among young people across Canada” (Green Street, 2006).

As an environmental education expert, Susan saw her role within the project team as twofold: first to provide advice, direction and assistance in establishing a framework for the project that built the capacity of environmental education through the non-formal sector of the environmental group arena; and, secondly, to develop some standards or benchmarks for excellence. She described her aim in this as making sure environmental education was seen as more credible and accessible - and “having some clout”:

So instead of us working on the fringes as environmental educators some of the premise is to be able to create demand for environmental ed … so teachers, and students, and school boards will be coming to ask for it instead of the other way around. [S1SS: 36]

Susan explained how she carried this personal aim into her next role, where she contributed to drafting a document for environmental educators that outlined and described educational evaluation methodologies and tools. The aim of this was to enable professionals and academics to effectively evaluate environmental educational programs (Thomson and Hoffman, 2006).
When we spoke in 2003 Susan described herself as having a long-standing role in marine education. At the time, she felt that her greatest contribution to the marine education field was the work she did on curriculum development in the early 80s. In particular, she spoke of the significant input she had in developing “Fish, Whales and Fisherman”, a Newfoundland package that investigated aspects of the marine environment and how people interact with it, including the issues pertaining to whale conflict and how education was trying to resolve them (Lien, Staniforth and Fawcett, 1985). Susan described this as a very empowering experience both for her and for the participants, and regarded it as a highly successful program.

_Essentially what we did was work with fishermen to help them get the whales out of their gear, alone by themselves, without having to call us and without having to kill the animal or endanger their gear as much as possible. So we developed a system to help them do that._ [S1SS: 95]

Later, and in her guise as consultant, Susan spoke about her contribution to the support documentation around the Canadian marine park legislation by assisting to develop a World Wildlife Fund book and papers on marine protected areas.

I initially chose to interview Susan Staniforth because she is a well-recognized consultant with different Government and non-government organisations, and for the fact that she was identified as the first (and only) person known to have undertaken any form of evaluation of marine or coastal education programs in British Columbia. She was recommended by her peers as a potential interviewee mainly because of the role she played in investigating and evaluating the implementation of supplementary environmental education programs. The most significant program that was commonly cited by her peers was the very big British Columbian ‘Salmonids in the Classroom’ program, the evaluation of which she undertook as part of her Master’s degree. This program was already actively happening in many schools and was supported by an extension component run through the North Vancouver outdoor school, which comprised a built hatchery where children were able to see the whole salmon life cycle. The program is supported at both a provincial level, (through the school boards and school district levels) and at the Federal level (through the Department of Fisheries and Oceans [DFO]).
In order to investigate how environmental education programs are moved from ideas to action within a classroom setting, Susan chose to look at how a highly successful program – the Salmonids program – was being implemented in a Vancouver urban school district. She conducted in-depth, open interviews with the teachers using the program and with the district’s assistant superintendents; made informal classroom observations; and analysed relevant documents. She described the program as being a “substantial, knowledge-oriented curriculum focusing primarily on salmonid enhancement” and finding that “(t)he program is relatively narrow in focus, covering the biological, economic and cultural aspects of salmonids, and omitting the wider, ecological view of marine and freshwater ecosystems” (Staniforth, 1987, pp. 90-91).

Although most of Susan’s self-proclaimed preferred work was in the marine education field, she grew up in Montreal where she described her initial wilderness experience as revolving around lakes and hills, hiking and mountains. She saw her fascination with the marine environment as beginning in her early 20s, when she went to work in a Newfoundland outdoor school. At the school she functioned as a biologist (having completed her BSc) for the resident whale researcher (on both a voluntary and paid basis) where, over time, she developed a sense of the importance of education in conservation work and in getting conservation messages through to the general public:

\[
I \text{ got more and more interested in education because I felt that the work I was doing as a biologist was fascinating research but it wasn’t getting out to people… the communication vehicles were not in place at all and that frustrated me because at one stage I saw reports literally sitting on shelves and realized the critical importance of… if any of this stuff is going to be conserved or understood or celebrated it had to be made accessible to the public and made accessible to kids right up to adults. [S1SS: 11]}
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Susan spoke about how her research work on whales eventually took her to South America, to work with another whale researcher. But it wasn’t until later when she began work with an NGO in Ecuador that she was able to further explore her burgeoning interest in the importance of science and science as education. It was this experience that she felt encouraged her to undertake the Masters in Environmental Education that resulted in her evaluation of the Salmonids program discussed earlier. Susan described how, having completed the Master’s degree, she returned to her interest in whale research and biology.
but continued to seek out new educational experiences to further develop this interest, and eventually returning to the field of environmental education as a consultant.

Throughout the years, Susan has continued to donate her time to environmental education, both on a paid and voluntary basis. At the time of our interview, she had been working for a long time as a volunteer coordinator with the Great Canadian Shoreline Cleanup program, an international event that is sponsored by the Federal Department of Fisheries and Oceans, and she still worked with the Salmonids in the Classroom program, assisting students to raise salmon eggs to fry and then release them into nearby streams.

Susan saw marine/coastal education as having two objectives, namely to raise awareness of the marine and coastal environment and to conserve these precious and fragile ecosystems. In order to pursue these goals at a personal level, she worked as an environmental education consultant (specializing in marine education) and undertook teacher training workshops. In addition, she wrote curriculum; worked with non-profit organizations; volunteered at “The Marine Ecology Station” (now closed), a local marine ecology centre where she taught school groups about the marine environment; and also acted as volunteer leader at her daughter’s school taking groups of students on beach walks and field trips.

Throughout her life, particularly through both her professional work and her time as a volunteer, Susan demonstrated a commitment to marine education, her fascination and love of the marine environment and her enjoyment in sharing this knowledge and passion. Today, Susan still works as ‘Staniforth and Associates’, an Environmental Education and Research Consultancy in British Columbia, Canada. Susan still describes herself as an educator and a biologist that specializes in environmental global, public and conservation education at local, regional, national and international levels. Her emphasis is on transformational educational approaches that go beyond information transfer to promoting change in behaviour.

5.2.3 Rick Kool
Like most of the marine educators I have interviewed, Rick Kool didn’t initially feel that he had contributed anything of significance to the field of marine and coastal education. After
further reflection, however, (and again like most of the other marine educators) he identified the time (every spring over twenty-five years) he had spent with people down on the beach as a significant contribution.

For over 25 years Rick worked with the Sierra Club leading field trips to a local breakwater at the end of his street. Here he introduced children and their parents to the marine wonders that can be found at the breakwater at low tide during spring time.

So we just go to the end of my street and we have a breakwater that goes out into the ocean. And out in the breakwater with all these beautiful little kids and their parents and on a beautiful sunny day in May and the tide is way, way out, it's really a low tide and I realize I've been doing this for 25 years. I've been taking people in the spring time down to this breakwater and I get just the same enthusiasm and pleasure out of doing it now as I did 25 years ago cause I really love this place. And I love these creatures on it. And that's the power of the place-based stuff… to me anyway. [S2RK: 12]

Rick sees himself as a good speaker and explained that this is why he is in high demand to give talks. He described how he has given hundreds to thousands of presentations over time in schools and community halls, or in the natural environment to various people in an effort to share with them the enthusiasm he has for the marine and coastal environment. He continues to share this passion, even though he philosophically believed that the effects of teaching cannot really be predicted or fully known:

...teaching is a faith based activity because you do this stuff knowing that you are very unlikely to know what the impacts are of what you do, and it's rare that you actually run across somebody that says “you are the person who showed me this or told me that”. [S2RK: 50]

Over the years, Rick saw his work taking him from being an environmental educator working for a government agency, to becoming a government bureaucrat not involved with education at all, then to academia where he is now a major player in the environmental education arena, specifically in marine and coastal education. Rick described how, during this time, he had constantly been working towards making an invisible impact on the educational (and possibly the environmental) system of British Columbia. He perceived this goal as being achieved: through the articles he has written (Hart, Jickling and Kool, 1999; Kool, 1992; Mrazek and Kool, 1997; Philippe and Kool, 2000); through adopting the persona of 'Doctor Goulds' on a radio program and answering children's (and adult's) questions; through designing and running training workshops; and through the many
presentations he has delivered to children and adults alike, both in a classroom setting and in the natural environment.

It is for this peer-recognised ongoing commitment; the reputation he has gained over the years as a respected environmental educator; and the passion and enthusiasm he has for the marine and coastal environment, that I chose to interview Rick for this research project.

I had the opportunity to interview Rick twice over two years. At the time of the second interview, Rick was a lecturer in the School of Environment and Sustainability at the Royal Roads University in British Columbia. His role here was to set up and run the new Master’s program in Environmental Education. As part of this program he aimed to encourage students to reflect and write their environmental autobiography in an attempt to help them think about the importance of their primal places:

*I think that’s really important. You know, how do we come to be the way we are? Well for me I think it was the word ‘photosynthesis’ and it was moving to the beach.* [S2RK: 15]

Rick saw this move to the beach as being the time when his interest in the marine environment really began, and he described how this change in environment inspired his scientific aspirations:

*...when I was 10 we moved from the city up to a little beach house, on a little skinny finger of sand that went out south of Boston Harbour. A skinny finger that was three blocks wide. From the bay to the beach was three blocks and I lived on the Bay. And so I just became... I wrote probably the first field guide to the marine invertebrates of Hull Bay when I was 13 or so, or 14, because there were just no field guides. And so my focus on natural history of marine animals really goes back to some of my earlier aspirations as a scientist.* [S2RK: 12]

He spoke of later realizing these aspirations when, at the University of New Hampshire, he took out a Bachelor of Arts in Zoology (focusing on the marine environment) and a minor in philosophy.

In 1971, he moved to Vancouver to obtain his teaching certificate from the University of British Columbia which, according to Rick, led him into a professional life almost entirely devoted to the world of education. Rick described himself as having, over the years, been a secondary science teacher, a biology and ecology instructor, and a post-secondary
instructor at two British Columbian universities. He also talked about his work in the non-
formal education sector managing the public programs department at the Royal British
Columbia Museum in Victoria, and developing environmental education and park
interpretation programs for the provincial government (Kool, 1992).

As a secondary school science teacher, Rick taught at Ucluelet Secondary School on the
west coast of Vancouver Island in what he describes as an “extraordinary marine
environment”:

*Big waves. Big trees. Big beaches. Huge organisms and whales. The most
species of sea stars in any place in the world. The biggest barnacles in the
world are on the west coast of Vancouver Island.* [S2RK: 10]

Rick’s philosophical background comes through when he talks about the importance of
place and how he sees himself as being a place-based person. He described how, during
his work with the BC Parks and his involvement in co-managing for protective areas with
Indian communities, he began to develop his philosophy of “rightful place”:

*...these First Nations guys wrote that this valley was their only rightful place on
Earth. And that phrase just knocked me out. Cause what is... do I have a
rightful place? I never even thought about the idea that one could have a
rightful place. I could own a place, but I don't know if that means it's my rightful
place. Here they're talking about rightfulness in a way that I had never thought
of, you know. And we're all immigrants here, you know. How do I know where
my rightful place is? [S2RK: 23]*

Rick put a lot of emphasis on the importance of place-based education, and identified that
this originated from the connections he made growing up in Boston amongst a liberal arts
tradition typical of the American north east. He saw this as being a very old tradition which
inspired (at least, in him) a sense of history – both personal and cultural - and a personal
sense of identity which incorporated a sense of belonging and place.

*Well I put these two things together in some ways. Maybe you can call a place
rightful when you actually live like you plan on staying there. And I realised that
that is sort of what I've been trying to move to in my life here on Southern
Vancouver Island. I planted fruit trees. That means I'm planning on staying
here. I'm planning that my backyard is going to be there for other people to
enjoy these fruit trees. I really know the marine world. The creatures, stuff... I
know where to find them. And I teach people about that. You know ensuring
that after I'm not here there are other people who can go down to the
breakwater and they know where to find the big chitons and the strange sea
stars, and things. So that place-based stuff to me is like a core of how we really
ground ourselves in the world and so it informs a lot of how I operate as a*
Rick also talked about his perception that marine educators need to be romantics and believe that what we do counts – because, as he pointed out, we rarely find out if it does or not.

\[
I \text{ think that it's a deeply romantic business that we're engaged in because we end up loving the places we work in and come to understand, and we really have to love the people we deal with, students and their teachers. So it's a calling that really calls to Romantics to some degree, and faith-based people...because you really never know what the outcome of your work is. But you do it, and then you just never see the lives of all these place-based people that stumble through your life. At least that's one of the reasons I'm here.} \quad [S2RK: 63]
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As lecturer and program head for the Master’s degree in environmental education and communication, Rick founded the first (and only) program that is “dedicated to bridging the gap between science and communications in the study of the environment” (Royal Roads University, n.d.). The topics included in this course reflect Rick’s personal interests and bias and include, for instance, community-based environmental activism; environmental literacy and education; and informal learning and innovations in education. The program is designed to enable environmental science practitioners to engage communities in a way that empowers people with the tools and opportunities to address environmental concerns (Royal Roads University, n.d.).

From being a teacher to working at the Royal BC Museum as manager of public programs, and with the BC government developing interpretation and environmental education programs, Rick has taken his deep-seated passion for teaching and sharing his understandings of the world to many different audiences. It is this commitment and dedication, the firm belief that his actions are making a difference and the enthusiasm that accompanies such a strong values and belief system that inform Rick’s behaviour. However, it was his love of the marine environment, his place-based beliefs that underpin his worldview, and his drive to share these elements with others that have brought him into this study.
5.2.4  *Gloria Snively*

Mention Gloria Snively's name amongst marine educators and they will tell you that she is a founder of marine education in Canada. She is very well known in both North American and Canadian Marine education circles and was referred to by every Canadian marine educator I spoke to. It became very clear from the outset that Gloria was someone I needed to interview for this research project.

Arguably Gloria’s most significant contribution to the field of marine and coastal education are the books, articles and curriculum she has produced (see Snively, 2000; Snively, 1998a; Snively, 1998b; Snively, 1989). Most significant of these was the field guide for the marine and coastal environment (Snively, 1997) that she wrote in 1978. This was particularly significant because it was written from a lay person's perspective rather than an academic one.

> At that time I was taking my kids to the seashore and there was not even one field guide for beginners. … There was nothing for your average elementary teacher. There was certainly nothing for your kids in school that was simple enough. So I thought, 'well I’m going to write a little booklet’… and the more I started doing this I started finding all these animals that I didn’t know existed. … So many years later I finally get this thing done and it’s like 200 pages of book. Yeah, one day I realized I had written a book. But the reason it was neat though was that I was really writing it from a real lay person’s viewpoint. … not as your typical field guide organized around the Phylum, but as kind of an adventure, you know, and the animals organised into kinds of marine habitats. So it’s kind of written a little bit like a story. [S1GS: 28-32]

The book has proved to be the fundamental identification guide for the coasts of British Columbia, Washington and Oregon for many years and is still extremely popular today.

Gloria is aware of the contribution her books have had on people and, therefore, on the field of marine and coastal education. However, she described introducing people to the coastal environment as the greatest contribution to the arena that she sees she has made.

> …I just think that it’s always been going to the seashore with a group of kids or a group of adults for the first time and the joy of being there and teaching them about what’s there. I mean the marvellous creatures and that’s the beginning point for all of it. The excitement and joy there. [S1GS: 86]

In this respect, Gloria’s perceptions are similar to those held by many of the other interviewees. They also see that the most significant contribution they have made to the
field is to provide opportunities for the public to explore and experience the coastal environment and all its wonders, thereby reflecting the inherent belief held by these marine educators that experiential learning is the key to changing attitudes and, perhaps, behaviour. (This premise is further discussed in Chapters 6 and 7).

As an Professor in the Faculty of Education at the University of Victoria in British Columbia, Gloria Snively has had the opportunity to influence the field of marine and coastal education through her academic and scholarly pursuits. She described how she had achieved this by focusing almost exclusively on providing graduate students with learning opportunities, mainly through running environmental education graduate programs. Her rationale for this was that these are all people who have strong leadership background skills before they entered into the graduate program.

Many have a strong science, ecology, marine biology, aboriginal education kind of background. People who are park interpreters, and some Fisheries and Oceans people in there, but you know like teachers who have a track record. [S1GS: 38]

Gloria rationalized that was, therefore, feasible that they would be able to reach a wider audience to effect change, and that they would be (and maybe even were already) the decision makers. It is perhaps not surprising that Gloria saw her role as being about empowering others to elicit change through education.

Yeah, I see it very much that way. Like I feel that here I have all these aboriginal science students, even the environmental ed students, I don’t care if my name is on any of their articles, I just want them to get going. [S1GS: 45]

Gloria explained that her current academic interest centred around Aboriginal education as part of environmental education.

I want to make sure that environmental education - (the) marine education program continues here, and the area that I’m very interested in is Aboriginal education because I really do feel, you know, very strongly that we have a huge amount to learn from Aboriginal people about sustainability. And I think they have just incredible views you, know, about the planet and nature and their whole kind of wisdom component of how they take care of and respect nature. [S1GS:39]

Much of her more recent writings were in this field (for example, Snively and Corsiglia, 2001; Snively, 1990; Snively 2007) as are many of the projects with which she is currently
involved. At the time of our interview, Gloria was participating in an Aboriginal science project with the Ministry of Education that focused on the acknowledgement of Aboriginal knowledge within the school system. She saw her strengths here as bringing people together, particularly because of her extensive experience and contacts within the field, including her strong links with the First Nations people:

*I find that more and more I’m kind of like bringing people together, like right now with this Aboriginal science project.* [S1GS: 91]

Like many of the other marine educators interviewed, Gloria did not grow up near the ocean. Instead her childhood was spent on a farm in Oregon “growing up with the wind and the forest and the stream that went through the farm”. Summer vacations were spent at the seaside, but, as with the others, she explained that it wasn’t her everyday playground.

*That’s my kind of background, growing up with the wind and the forest and the stream that went through the farm. That was how I grew up. And we were 60 miles away from the coast, you know. We used to go to Cannon Beach and Seaside on the Oregon coast regularly in the summer, which is a stunningly beautiful place, but that was far enough away that, as a kid, that wasn’t my everyday playground.* [S1GS: 21]

It wasn’t until the summer of 1966, after she graduated from her teaching degree that her interest in marine education began. It was at this time, the year prior to beginning her teaching career, that a retired marine biologist offered a ten day course on the Oregon coast for teachers. It was this intensive course that Gloria described as providing her with the knowledge and skills that would pave her career in the marine education field in the future. She went on to explain that it wasn’t until the year after, however, when she started teaching in Vancouver that she began to realize and act on this interest.

*And that one course that I took just really gave me an incredible knowledge about the marine environment for an elementary teacher. So kind of like overnight I became this kind of marine biology expert, with just the one course. So then from there, I just took my students to the seashore every year. I had a big unit about the seashore in the intermediate grades, and it just became my favourite unit. And it got bigger and bigger. And every year my unit turned into like at least a three month long totally integrated marine biology unit for my class. And then I just from there ... started writing curriculum material and (nature) books and it’s just ... one of my favourite things ever since.* [S1GS: 25-26]
Teaching about marine and coastal education, particularly in and around north-west America and Canada, became a key part of Gloria’s life. She explained how part of her passion in doing this related to empowering others to see and understand this environment as she does:

…doing the marine trips now has kept me sane because when you go on field trips, you get out there in nature and it keeps you sane, you know, and it’s a fun thing. You know it’s kind of a universal cheerful happiness when you get out there, and all those little plants and animals do their thing. They do the teaching you know. [S1GS: 32]

Like the other marine educators interviewed, it is this passion that has kept Gloria actively involved in the field for so long. In our interview, she spoke of her approaching retirement age and talked of the need for “succession planning”, that is the need for young marine educators to take over, and reflected on the part she has played in founding the field of marine education:

I think that’s one reason why I’m writing these curriculum materials and writing books because I want to get my thinking on these topics written down. I feel that I’ve had this long life of being involved in it and I still have a lot that I want to say - and I want to get it written down. Then I’ll just ride off into the sunset and be very happy… and just watch the sun set. [S1GS:43]

However, Gloria has yet to retire. Instead her passion for her work has kept her in her role as Professor in the Department of Curriculum and Instruction in the Faculty of Education at the University of Victoria. Here she continues to inspire and educate young marine educators, shaping them to be the leaders of tomorrow.

5.2.5 Patrick O’Callaghan

When I first met Patrick O’Callaghan he was working as the Director of the Queenscliff Marine Discovery Centre in Victoria, Australia. When I later came to interview Patrick he was employed as the Vice President of Conservation and Education with the Vancouver Aquarium. Since then he has now returned to Australia initially to work with Parks Victoria on the marine parks program, and later to become a consultant. It is for this in-depth dual perspective of marine and coastal education across the Pacific Ocean that made Patrick a highly desirable educator to interview.
At the Vancouver Aquarium, Patrick managed a wide range of services and departments including volunteer services, environmental communications, the library, Primary school programs, Conservation Outreach, Conservation initiatives, interpretive delivery, and web design and maintenance. This included the way products were developed, the focus they were given, and the factors that were considered within the design.

External to the Aquarium, but on the Organisation’s behalf, Patrick talked about the leadership role he had taken in the ocean conservation education community in turning people’s ideas upside down throughout North America:

…(T)here’s a number of communications initiatives that the Vancouver Aquarium has been part of and we’ve now stepped up in partnership with a couple of other organizations specifically The Shed Aquarium in Chicago….Me and my counterpart, we’ve been delivering some behavioural change workshops to various zoos and aquariums around North America. We’ve been involved in taking some of this communications strategy work to China, to Europe. Really reviewing a lot of the assumptions that most of the displays and programs in zoos and aquariums are based on. … (I)t ‘ s really important because so many assumptions about learning have become entrenched in curriculum and delivery style and design and it’s not working. [S1PO’C: 51-54]  

This work was part of the Ocean Project:

an international network of aquariums, zoos, museums, and conservation organizations working to create an understanding among their visitors and members of the significance of the ocean and the role each person plays in conserving our blue planet for the future. (Ocean Project, website accessed 29/7/2006)

This Project incorporated examining what the aquariums, and so on, were doing, how they were doing it, and what were the assumptions underpinning their programs. According to Patrick, once these were identified, then they were taken one by one and tested by mixing them up to design an improved methodology. Using destinations like Vancouver Aquarium as change agents in this process, Patrick felt that they were able to contribute to achieving the Aquarium’s admission based goals.

*Because unless we can understand that, unless we can actually get to a point where we’re confident that we can influence change then to strut around and say we’re a conservation based organization is totally meaningless because the very existence of a place like this consumes immense resources and if we can’t demonstrate that there are significant outcomes in the public sense as a result of that, what the hell are we doing here?* [S1PO’C: 58]
Patrick saw this as his greatest contribution to the arena of marine and coastal education. The Ocean Project now has hundreds of aquariums, zoos, science and natural history museums, conservation organisations and other interested educational institutions that have signed on as partners in the project forming a global network across 60 countries, all who are concerned with developing strategic communication for ocean conservation. The Ocean Project’s broad network is utilized “to enhance ocean awareness among the public; change attitudes and behaviours for conservation; increase civic involvement in community conservation activities; and generate regional and national policy-focused action” (The Ocean Project, accessed 29/7/2006).

Like most of the other Marine Educators, Patrick trained initially to be a teacher but described how he soon realized his original passion to be a Park Ranger by undertaking a Masters in Eco-system management. It was here, he claims, that his interest in utilizing computers and systems to inform environmental management was born and where his personal philosophy of how education sits within that framework initiated.

Patrick talked about how it wasn’t until part way through his career as a teacher that he began his professional interest in the marine world. Patrick related a story of how, after taking part in a sand dune re-vegetation workshop with the Queenscliff Marine Discovery Centre (QMDC), he jokingly told the leader, Tim Allen, that he wanted his job. He spoke of how this assisted in his applying for a position at the QMDC, but that it was his personal enthusiasm that helped him to overcome his lack of any personal marine experience:

So I was interviewed by a guy in a suit and a girl in a bikini, and they didn’t ask me anything about my in-water experience, which had been nothing. I’d never put my face under the water. Never been snorkelling before. So I didn’t tell them that cause they didn’t ask. [S1PO'C: 44]

This proved to be the start of a new pathway for Patrick that would eventually underpin his personal and professional philosophy.

During the interview, Patrick described how his understandings and philosophy stems from his experience of educative institutions as a teacher. For instance, he spoke of how he was the only teacher who refused to pay for a group education session at the Marine Discovery Centre as he felt he could have done what the Centre covered back in his own classroom.
It was interesting... one of the questions I got in the interview was what sort of things have influenced the way you approach programs and this is one that stuck with me all the time... it was that we (my class) had such a bad session down there that I refused to pay. Apparently, I was the only teacher in the industry who basically refused to pay! Cause I walked out of there and thought "I could have done this back at the school. [S1PO'C: 36]

According to Patrick, it was this experience that provided him with the insight that non-school educative organisations need to value-add experiences, which, he felt, informed his later professional life.

...that was really interesting because it reminds me that there is this need in non school settings that whatever you're providing for people, whether it be students or general public, it needs to be something that they can't do for themselves. The organizations, particularly with conservation, they've got to take that extra step to really value add to the experience and whether it's in a fish tank or back in the real world or in a marine environment, there's got to be this significant value-adding, and that's got to be purposeful.. [S1PO'C: 38]

From his time working both in Canada and in Australia, Patrick has had the opportunity to acquire a unique perspective of how education regarding the marine environment is developed and delivered on both sides of the Pacific Ocean. He currently applies his extensive experience and knowledge of marine and environmental education to the position of Executive Director at Conservation Enterprises Unlimited, “a global network of creative, committed environmental specialists” (Conservation Enterprises Unlimited homepage, accessed 22/2/2010) where he has been employed as a consultant since 2007.

5.3 The Australians:
The marine educators interviewed in Australia came from very different fields in the marine education arena, which their stories reflect.

5.3.1 Geoff Wescott
During our first conversations, Geoff Wescott asserted that he had contributed three key undertakings to the marine and coastal world. His most significant contribution, as he saw it, was the Coastal Management Act 1995. Geoff’s PhD thesis (Wescott, 1988) investigated directions in coastal management in Victoria and as a part of this he recommended legislation, which although not revolutionary, was consistent with global
trends. According to Geoff, the Coastal Management Act reflects about 75% of the recommendations he put forward in his thesis, of which he is very proud.

"So I finished at the Conservation Council of Victoria as an environmental lobbyist to go back and do the PhD on the Victorian Coast and I suppose from there to the Coastal Management Act in 1995. I would have thought… that would be the most substantial thing – to be able to follow it all the way through and then sit on it. You know, sort of set up an experiment and then become part of it is very interesting. Yeah, that would be number one as a personal sort of contribution. [S1GW: 62]"

The second major contribution that Geoff perceived that he had made was initiating the idea for marine parks in the political arena. Geoff described how, in discussions with an ALP politician in 1982, he laid the foundations for representative marine parks to be established in Victoria:

"The marine parks for me go back to 1982 when I had a conversation with a person from the ALP before the ALP were elected and they asked me what can we do for marine stuff in the policy statement. And I said you should say something about representative marine parks along the Victorian coast and it turned up in the policy statement… shows you something about the policy formulation back then. And all of a sudden it turns up a week later and the Shadow Minister is up there saying we need marine parks…. But of course it took more than… 20 years from then when they occurred, but yeah I suppose that’s the second one.[S1GW: 62-63]"

Geoff explained that in those first years after the policy was formulated, he was responsible for ensuring that the then Government carried out the proposed investigation into the marine and coastal environment in order to establish the marine protected areas. However, it was ten years later that the first study was carried out and over another ten years before Marine Protected Areas became a reality in Victoria.

As he saw it, Geoff’s third significant contribution to the field was his input into the Oceans Policy and its establishment. Like the other marine educators, Geoff also saw his contributions as part of a bigger picture where changes are made because a number of people make personal significant contributions: “I mean they’re like all things, you’re a contributor rather than a sole person”. [S1GW: 64]

I chose to interview Geoff because he is a recognized academic and lobbyist within the coastal and marine management field. Geoff’s contributions to the area (as discussed
above) are indicative of this, as are the many papers he has produced over the years (for example Wescott, 2005; Wescott et al, 2002; Wescott, 1995). It is for these reasons and the research he has undertaken over the years into marine policy that Geoff Wescott could be considered the repository of marine and coastal policy history in Australia.

As Associate Professor and Associate Head of School (Development) in the Faculty of Science and Technology at Deakin University, Geoff plays a major role in teaching environmental management to undergraduate, and postgraduate, students. Like Gloria Snively, he is, therefore, able to convey his passion, enthusiasm and beliefs to a group of people who will be the future leaders in the field.

At the time of our interviews, in addition to his lecturing and supervisory academic roles, Geoff held a number of governmental positions in a voluntary capacity. As with a number of the research participants, I interviewed Geoff over a couple of months, during which time his governmental roles changed. When I first interviewed Geoff in 2004, he was the Deputy Chair of the Board for Parks Victoria (this position finished on 31/12/2004). According to Geoff, he was initially invited to this position five years previously because of his marine expertise and the fact that Parks Victoria was about to pick up the Marine National Parks and Marine Sanctuaries. Prior to this Geoff was an inaugural member of the Victorian Coastal Council, which was appointed under the Coastal Management Act to be the peak body for the strategic planning and management of the Victorian coastline (Victorian Government, 2006).

During our second conversation, Geoff was on the Victorian Marine Science Consortium (which used to be the Queensliff Marine Station) and worked closely with the Marine and Coastal Community Network. He spoke of how he was then in the process of writing the third edition of his field guide “Life on the Rocky Shores of South Eastern Australia” (Quinn, Wescott and Synnot, 1992), an illustrated guide to the rocky shore environment of this part of Australia.

In a daily work sense I run two subjects at Deakin in coastal and marine management and planning, and run the national park management course… So there wouldn’t be a day goes by when I’m not doing marine and coastal education in one of those senses that I mentioned earlier. [S1GW: 33-34]
Geoff spoke of his interest in the coastal environment beginning at an early age when he experienced the classic coastal cultural background of holidays by the sea side, foreshore reserves camping holidays, swimming on the beach for summer school holidays, and so on. However, it wasn’t until he arrived at University that he began to specifically get involved in marine or coastal issues:

*I didn’t do biology until first year, so in a way my whole sort of career and interests opened up in that first year. Invertebrate zoology in second year, which is 95% marine, I suppose was my real initiator into marine.* [S1GW: 21]

According to Geoff, this inauguration into biology and invertebrate zoology led to his interest in marine habitats and the organisms that dwell there. His commitment to conserve and protect these fragile environments led to his work on the Public Interest Research Group’s coastal environment study that resulted in the publication of ‘A Coastal Retreat’ (Smyth et al, 1978), a major study of Victorian coastal management. Geoff described how, at the same time he completed his Honours degree on crabs and the zonation of Flinders Reef (published in Wescott, 1976), a publication that is still being used, today, as the key to inter tidal crab species of Victoria.

In 1980, Geoff (and colleagues) produced ‘*Life on the Rocky Shores of South Eastern Australia: an illustrated field guide* [or the first edition of ‘Rocky Shores’] (Wescott, Synnot and Powell, 1980). Geoff spoke of how this guide built on a paper that he and Russell Synnot (Synnot and Wescott, 1976) wrote as a result of finding that no one could identify anything on a rocky shore because there weren’t any publications on this particular environment.

Geoff described how this interest burgeoned into a Masters in marine competition between crabs and later a Masters in Nature Conservation in London, which eventually brought him back to Australia and the position of Director of the Conservation Council. After completing his PhD in coastal management in Victoria, Geoff took the position of chair of the Coastal Reference Group in Victoria which took public submissions and resulted in the Coastal Management Act (1995), the Victorian Coastal Council (2006) and the Coastal Strategy (2008).
Geoff perceived that about 70% of his career has been within, and for, the marine and coastal environment, which is a reflection of his passion and personal enthusiasm for this ecosystem.

I just loved the beach and loved going down the sea side and loved walking on the rock platform and just still do. I mean I still just think it’s a fantastic environment. So I mean I just really enjoy coast and oceans more that I enjoy any other place and so I suppose I took a very deliberate decision, that if I could maximize that enjoyment by spending more time there all the better and it was, of course, within that time scale I’m talking - 1973 to 2004 – there was no one else doing it when I started. Just a few of us anyway, so it was wide open. So I didn’t do it because it was a good career move, but nevertheless it was a wide open field so you could do anything. [S1GW: 30]

Over the years, Geoff has played a long term significant and consistent role in marine and coastal education. He has been a lobbyist, an educator, an advocator, a researcher, a writer and an academic. Now he sees himself taking more of an academic role in critiquing the happenings within the marine and coastal environment, specifically those concerning coastal policy (Wescott, 2006).

5.3.2 Mark Rodrigue

In 2001 Mark Rodrigue was appointed to the Central Coastal Board, of which he is still an active member. Since then he has contributed extensively to strategies and policies that pertain to the Marine National Parks. For example, Mark developed the community engagement section of the Marine National Parks and Marine Sanctuaries Strategy 2003-2010 and the implementation plans for the Coast Action Strategy.

In our interview, Mark spoke of his more recent role as Marine Coasts and Catchments Officer with Parks Victoria. In this position he was responsible for the development of strategic approaches to address key risks to Victoria’s Marine National Park system and, at the time of our conversation, was in the process of coordinating workshops to implement the Marine National Park and Marine Sanctuary Management plans. Although on the surface this role may seem to be a leap away from education, Mark saw it as being a different face of the same coin, in that he was still educating people about the marine environment but he was reaching a wider audience by educating those that can pass the message on further (that is, coastal managers and park rangers, and so on.).
...I've basically been trying to put my skills and experience into places where they can make a difference ... [S2MR: 49]

I spoke to Mark over a number of years. This proved interesting as Mark moved jobs and had the opportunity to experience the freedoms and limitations inherent in the roles he adopted, resulting in a noticeable change in his perceptions and attitudes over time. When I first spoke to Mark he was a teacher at the Queenscliff Marine Discovery Centre (QMDC) and was very passionate about what could and should be done in marine and coastal education. The programs he designed were very much hands-on and he led many of them himself.

The next time I interviewed him, Mark was working as the Statewide Program Coordinator for Coast Action/Coastcare with the Department of Sustainability and Environment (about two years later) and I felt that, to a certain degree, this time he had adopted a more bureaucratic attitude, and the passion and enthusiasm he had exhibited as a teacher at the QMDC was restrained and somehow dampened. This was a 12 month contract for Mark that essentially looked at furthering community education and interpretation of the marine and coastal environment:

*Coast Action/Coastcare is a joint State Government/ Federal Government program that provides opportunities to build... well there’s two areas: essentially there’s... awareness raising for the coast and capacity building ... [S2MR: 45]*

In more informal discussions with Mark 12 months later when he was working as a Marine Coasts and Catchments Officer Mark talked about this change in his attitude and reflected that it was a result of being given the opportunity to see the issue from both sides – the community educator perspective and the government conservation perspective. This, he believed, enabled him to have a deeper understanding and experience of the issues and how to motivate people to encourage change.

According to his peers, Mark has been a leader in spreading the word about marine education in Australia, and internationally. Mark described the significant role he has played over the years in developing and producing information resources for school groups and the general public, including curriculum, professional development programs, materials for international online workshops, material content for television, print and other media
focusing on Victoria’s Marine National Parks and Marine Sanctuaries, as well as
developing and leading a range of interpretation and activity programs.

It is for this recognition of Mark’s role as a key player in the marine and coastal education
field and his significant contribution to the field that I chose to include him in this research
study.

During our conversation, the many contributions Mark has made to the field of marine and
coastal education became obvious. Mark spoke of, for example: his position as a key note
speaker and invited delegate at a number of national and international marine
environmental education conferences and workshops (Rodrique, 2004; 2003; 2001); the
significant role in the Marine Education Society of Australasia (MESA) he has played over
time; the significant contribution he has made to the writing and promoting of Seaweed, a
community education program; his role as a founding member of the Australasian Marine
Educators Alliance (AMEA); his indirect contribution to the Marine Parks legislation by
providing substantial input to the process via lobbying and written input as an individual
and as President of the Marine Education Society; and the role he had in developing the
Parks Victoria Marine Program and putting together resources for schools providing
teachers and students with an understanding of what is special about these parks and why
they should help to look after them:

The Parks Victoria education program is very much a direct response to, and
are very much a part of, integral part of, a community engagement component
of the marine national parks implementation… marine national park protection is
going to be about people getting an understanding of the values, so we saw the
value of actually putting a lot of time into developing specific resources for
school. But not necessarily in schools… provide teachers and students with an
understanding of what was special about these parks and why they should be
helping us in looking after them, and what they can actually do. So there’s quite
a number of things that happened in that area. [S2MR: 208-211]

Mark described the resources he developed through Coast Action/ Coastcare for the
community, one of which directly focused on Marine National Parks. The key messages in
the State wide interpretation program were around Marine National Park protected tourist
biodiversity/conservation for future generations. These efforts, according to Mark, resulted
in the establishment of a partnership arrangement occurring for the summer activities
program.
Mark’s work efforts have resulted in him being the recipient of a number of awards in marine education (including the CRA International Science Teaching Fellowship in 1995 and the Victorian Coastal Award for Excellence in Education in 2002). Despite these awards, Mark felt that his most significant contribution to the field of marine and coastal education was: to continually look for ways to incorporate education into the government strategies and coastal management policies; to keep the education focus with natural resource management “which tends to be very much focused on practical outcomes rather than people”.

I think having a good background in education has probably been the strongest thing to keep the focus of education in the minds of resource managers. Certainly I’ve provided a lot of the input into the Victorian Coastal Strategy and focused very much on the role of education… to be actively looking for opportunities in broader community involvement through education… whether it be through formal education or broader community education. [S2MR: 72]

I think my most significant contribution to the field of marine and coastal conservation has been to continually push the role of education as part of that process. [S2MR: 73]

Like many of the other marine educators interviewed, Mark described how his love relationship with the sea stemmed from a very early age. He spoke about how he started snorkelling when he was 4 years old, although he didn’t live near the coast until he was in upper primary school:

(I) lived down on the coast in Port Moresby, New Guinea, and any spare moment I had was basically out with a pair of swimming goggles on trying to look under the water at stuff and just loved that. I guess that’s where a lot of my connections come from – those early years and experiences that I had in those sorts of environments. We had access to a boat and I used to go out a bit and check out some pretty interesting places and all sorts of fantastic reefs and reef systems. So that was really where it started. [S2MR: 29-30]

Mark went on to relate how he discovered the Victorian coastline when he moved to a bayside suburb in Victoria, Australia, during his High School years and could spend his spare time snorkelling off the Mentone beach. He was able to further indulge this passion by taking extra subjects that were marine related at University for no other reason other than he found them interesting.
Mark described how he took this fascination further when he began working as a teacher, by including marine studies in his science programs wherever he could, until he had the opportunity to get seriously involved in marine education:

> When I worked as a teacher for a couple of years it was something that I used to enjoy trying to include in my science programs. But it wasn’t until I got the opportunity to teach a marine studies unit in the Year 9... at Queenscliff High School that I actually started to get seriously involved in the opportunities out there. But that was a terrific chance to basically just really explore what marine education was. And I had a couple of good colleagues at the time. People like Julie Schwartz and Ian Fleming and Chris Christianson at the Marine Studies Centre, as it was called, in Queenscliff – and I was teaching at Queenscliff High School. I basically went down to them and said ‘look, I don’t know anything. Can you teach me some stuff? I’ve got this Year 9 unit’. And they basically took me under their wing and gave me a lot of guidance, and I went to a couple of professional development programs with them. [S2MR: 33-34]

Mark’s close relationship with the staff at the QMDC progressed over time, as did his passion to introduce marine studies units into his classes whenever he had the opportunity. Until (eight or nine years later), Mark finally took up a position at the QMDC, and as he saw it:

> ...that was where it all really came together. It was the greatest change in my life in terms of having the opportunity embedded in a marine education organization. [S1MR: 37]

Mark worked in this role for ten years then took up a position with Parks Victoria as an Education and Interpretation Officer, working on the community education programs associated with the newly established Victorian Marine National Parks and thereby pursuing his personal passion.

> That was a very exciting time because the Marine National Parks here in Victoria had just been established. Building on the experience that I’ve had at the Marine Discovery Centre provided me with a chance to actually develop the community... help community understanding about the values of these parks and that was in itself a very much personal passion. I had worked towards the parks coming in. I’d lobbied and written letters and spoken about it over many years previous to that so the chance to actually play an active role in really leading the development of the community understanding of the values of the parks was very exciting. [S2MR: 41]

According to Mark, this change in career also meant that he was given the opportunity to identify marine education priorities and to focus on what he perceived was important:

> It had a great personal impact. It got me lots of opportunities to meet a terrific group of people across the state in terms of management of these park areas.
But it also helped me to really focus on what was important. Things like strategies for beginning a broad community understanding about the values of these parks. [S2MR: 42]

Mark described how he later became the Statewide Program Coordinator for Coast Action/Coastcare, and still later assumed the role of Marine Coasts and Catchments Officer with Parks Victoria. He currently works as a Program Leader with Marine and Coasts, Parks Victoria, Melbourne.

It appears that Mark has lived his life around his passion for the sea and his belief that education is a significant instrument in conserving this environment. His belief that marine and coastal education is

...about trying to improve the ability of individuals, of communities, of industry, of government, to better protect the values: natural values; the cultural values; of our marine and coastal environments. But at the same time recognizing that these environments provide us with a broad range of resources. What we need to ensure that those resources are used in a manner which is sustainable for a long term. So that’s essentially looking after the resources and using them wisely but at the same time valuing and protecting them… [S2MR: 14-15]

is a clear indication that this attitude is deep-seated and long-standing.

5.3.3 Harry Breidahl

Harry Breidahl is a name that is synonymous with environmental education in Australia. Over the years Harry has taught many about the wonders of the natural world either through the workshops and courses he runs, through the many voluntary marine and environmental groups and associations of which he continues to be a member, or via the many and diverse books and other publications he has authored. In particular, Harry has become a leader in marine and coastal education, and a key contributor to many Commonwealth, State and Local government marine and coastal plans and initiatives.

During our interview, Harry described how he worked as a freelance consultant, to: design and develop programs for a wide range of people (including developing a Marine Watch program using marine water testing techniques for Melbourne Water); teach at primary, secondary and tertiary levels as well as a number of adult education programs through the
College of Adult Education; write web sites that dealt with beach combing in Australia; build marine displays (he built the interactive educational caravan for Parks Victoria to raise public awareness of the newly created marine parks at Wilson’s Promontory); and write natural history and marine books for children and the general public (he has over 100 books published).

My father-in-law still says to my wife “what does Harry really do?” And because I work freelance that’s very hard to define…but basically I’m a Marine Communicator, and that involves a very wide range of tasks, but all of which are built around a skill set that educators have. [S1HB: 20]

Harry spoke of how his interest in the marine environment has taken him around the world, including to America where, he reported, he had worked with Harbor Branch Oceanographic as a voluntary teacher on a research oceanographic vessel. The project is funded by the American government and is developed around exploration of the oceans. Harry’s role on the research vessel was to write the web dispatches (daily reports of research related events on board ship that are posted on the web for the general public and school groups to follow the scientists’ progress) and to gather information relevant to the development of ocean explorations programs for schools:

that’s me, sitting on board a research vessel in the middle of the Atlantic writing web dispatches, describing what’s going on a kilometre under the ocean. [S1HB: 36]

Harry spoke about how, back in Australia, he used this information, his experiences on the ship, and the footage he gathered, to teach school groups about the ocean environment, which subsequently, has led to a high demand for his presentations.

Aside from these excursions overseas, Harry talked about his ongoing work in developing a southern Australian marine monitoring program and web site (Breidahl, 2008), which provides information on the coast and local beaches to the general community, and in designing and constructing a marine science laboratory at a local high school.

It’s just a matter of having a passion and it takes me all over the place. [S1HB: 33]

He also described the range of work he was involved with at that time, including: working with the State Government Advisory committee to develop a vision for learning at the new Point Nepean National Park and the new National Centre for Marine and Coastal
Conservation with the AMC; a marine education expert with the Mushroom Reef Sanctuary Advisory Group; working with the Western Pacific Fisheries Council in Hawaii to organize the International Pacific Marine Educators Conference in Fiji (www.ipmec.info, accessed 17/6/2006); investigating international funding models for marine education that could be adapted for Australia; working to promote “teacher at sea” with the Harbor Oceanographic Branch; and his work on Ocean literacy with a group in the USA that he planned to bring back to Australia (Breidahl, n.d.).

Harry’s combined passion, experience, enthusiasm and knowledge of marine education appears to have made him one of Australia’s leading marine educators. Just as Geoff Wescott could be considered the expert in Australian marine and coastal policy, one could claim that Harry is the gatekeeper or repository of marine education history in Australia, since he has been in the arena since its formalized inception many years ago. Harry is a founding member of the AMEA (Australasian Marine Educators Alliance) and of MESA (the Marine Education Society of Australasia) and over the years has played a large part in developing some of their main programs. He was responsible for developing the international job-sharing network for marine educators called Sea exChange and for Seaweek, an annual marine awareness program (see www.mesa.edu.au, accessed 16/6/2006). He was also responsible for establishing the now defunct marine centre in Tooradin, and for training the initial Queenscliff Marine Discovery Centre staff.

Another significant contribution to the marine education field is ‘Australia’s Southern Shores’ (Breidahl, 1997), a guide to Australia’s southern coast that was published through an Ocean Reserve 2000 grant. According to Harry, the rationale for funding the book was to address the imbalance between material available to the public about the Barrier Reef and temperated waters. It proved to be very popular:

*I just get so many positive responses to that and it was in a sense the work… not of a lifetime, but of a period of my life.* [S1HB: 147]

However, Harry saw his greatest contributions to the field as the impact and influence he has had on other people, whether they are children, parents, general public or other marine educators. He spoke of how students would change subjects to be in his classes and experienced marine educators sign up for one of his snorkelling or diving sessions, and
how his input is sought at key marine conferences, particularly those pertaining to marine education.

The other thing more generally is just the influence that you have on people that again is not measurable in the sort of terms that government funding bodies or other people want. [S1HB: 157]

So in general, that influence that, because of the field we’re in, you know, we’re teaching people. It’s that sort of thing that’s good. [S1HB: 160]

Harry described his interest in the outdoors as long-standing. He talked about how, as a young man, he worked with a mining company in Queensland before deciding to combine his interest in geology and education by taking out a double degree of science and education at Melbourne University.

I hadn’t done biology at high school but, I quite freely admit this, there were lots of nice looking young ladies in the biology classes so I switched from physics to biology. I never looked back. I’d always been a water person, so my degree was in bio-geography. I was influenced by people like Eric Bird, very much into the coastal side of things. And then taught at Ashwood High School for three years as a biology teacher - set up lots of marine aquariums… I then managed to get a part time job at Gould League and part time teaching and that’s where I learned to write and all these other sorts of skills. [S1HB: 60-61]

It was when Harry joined forces with Alan Reed (employed at the Gould League and the Australian Conservation Foundation) that, according to Harry, he began to acquire the skills necessary for his career in marine education:

So I was incredibly lucky in the sense that I worked in a hot house environment in the times when there was plenty of money around for seconded teachers. [S1HB: 62]

Harry talked about how it wasn’t long though that the funding for seconded teachers ran out, and in 1988 Harry began the next stage of his career as a freelance consultant.

I ended up working freelance because by the mid to late 80s that freedom pretty much dried up. There wasn’t the money and I kept being in jobs that kept running out so when my wife went back to part time teaching I quit the Board, and that was in the beginning of 1988, and I’ve worked freelance for myself ever since…one of the things about it is that you just need to take on anything and learn as you go. [S1HB: 63-66]

…one of the things that’s really unique about me is that I can churn money that I earn back into new projects and I’m just going to keep doing that as long as I
can. And it literally wouldn’t happen in any other setting…other than a small self-employed person. [S1HB: 79]

At the time of our interview, Harry had become more involved in working with the government to plan for the conservation of the coast and marine environments and he spoke of the role he had played as a contributing author on a number of plans and strategies (Commonwealth of Australia, 1996; Department of Environment Sport and Territories, 1996; Parsons & Brinckerhoff, 2002; National Research Council of the National Academies, 2003, Parks Victoria, 2006), including the Victorian marine parks planning process.

According to Harry Breidahl the aim of marine education (and therefore marine educators) is the “ecologically sustainable use of the seas, the oceans, coasts and their resources…so in that sense it is very much a conservation based outcome” [S1HB: 41-42]. To achieve this aim he has developed, and uses, a skill set that he now perceives as becoming a dying or fossilized skill set:

…the majority of my work is built around raising awareness, rather than taking action, and that’s the whole thing. So the publications that I write are all focused on bringing the joy that I have in all these marine things to young readers or to a general audience. The website work that I do is exactly the same. It’s all built around the empowerment of knowledge. That little bit of knowledge. And that’s why (the) websites are so good…about the same with teaching. So it’s all about that level of creating awareness. [S1HB: 44-45]

Today, Harry works as a consultant as part of Nautilus Educational, combining writing with a range of government projects in the field of conservation, part-time teaching and lecturing at Monash University, and designing and constructing a marine science lab at a local secondary school.

5.4 Chapter Summary
The marine educators interviewed in this research have been introduced in this chapter and their backgrounds, significant contributions to the field, current roles and the reason for their inclusion in the study has been discussed. As is evidenced above from the interview excerpts, the marine educators come from a breadth of experiences and roles, for example as academics, policy developers, teachers, and so on. These experiences and roles have
opened up opportunities to influence policy, and to engage with a wide range of publics through the interpretation of policy.

There are many similarities between the marine educators in this group. Most noteworthy is the fact that all had positive experiences of the natural world as they were growing up, which led to a fascination with the environment. In addition, they had experiences (both personally and professionally) with a wide range of activities within marine education, and continue to do so. Most found it difficult to recognise the significance of their roles initially, and it wasn’t until they talked about their historical contributions that they were able to recognise the significance of their involvement in marine education. Similarly, most saw that it was not the programs or activities themselves that were significant contributions, it was the impact that these activities have on people that has given them significance and value.

Although some of the marine educators had not had significant experiences of the marine environment until adulthood, all had developed a love of the marine and coastal environment that they felt compelled to share with others.

All of the interviewees expressed a commitment to the marine environment and a real personal enthusiasm that led them to make significant personal contributions to the field. This strong commitment stems from a deep-seated connection to the coastal and marine world; one which informs their sense of personal identity and drives (almost compels) their passion and enthusiasm for conserving these environments and sharing this commitment and love with others.

A number of themes have emerged in the process of introducing the marine educators in this chapter. These include the passion they have for the marine environment; the enthusiasm they express and the deep sense of connection they have to the coast and that they want to share; their commitment to conserving these environments and how this has directed their actions and, arguably, their career choices; and their need to share their knowledge and experiences, and significantly, their enjoyment and love of the marine environment with others through education.
I use an aesthetic lens in the next chapter to more closely examine and interpret these emergent themes.

A number of common elements identify aesthetic dimensions to how they perceive themselves and their role, namely: the passion they have for the marine environment; the enthusiasm they express and the deep sense of connection they have to the coast and that they want to share; their commitment to conserving these environments and how this has directed their actions and, arguably, their career choices; and their need to share their knowledge and experiences, and significantly, their enjoyment and love of the marine environment with others through education. I use an aesthetic lens in the next chapter to closely examine these emergent elements.
Chapter 6

Emerging Atlantis: 
The interview themes

The sea, once it casts its spell, 
holds one in its net of wonder forever. 
(Jacques Yves Cousteau, 1910-1997)

Introduction
In the last chapter I constructed the marine educators’ stories from the interviews. The case studies reflected how they saw themselves and their personal contributions to the field. In this chapter I explore the more structured part of the interviews to draw out the similarities and differences between the belief systems held by the respective participants. A number of common conceptual manifestations (Polkinghorne, 1995) appeared during the course of analysing the stories of their personal beliefs. These stories are explored in this chapter as themes that draw out the similarities and differences that may exist between the different life experiences of these experts in the field.

During the course of the interviews and the analysis, I was struck by the marine educators’ passion and commitment to their field, and work within it. Their stories reflected a strong personal belief and sense of rightfully belonging in the natural world that informed and underpinned their identification of themselves. They saw themselves as marine educators and exhibited a strong desire to share their knowledge and experiences in order to help people create connections between themselves and the natural world.

Girod and Wong (2002) also understand that it is a characteristic of humanity to seek connections, whether it is to the earth, ideas or even each other - and that these
connections occur at many levels. “This sense of connectedness is not only at the level of individual cognition; it comes from a desire to know with one’s heart and mind, emotions and cognitions, imagination and reason” (p.199). Quoting Feynman (1995), they suggest that humankind seeks enlightenment “for aesthetic reasons” (Girod & Wong, 2002, p. 200). They proceed to argue that educators should not only empower and influence learners’ understanding and discourse about the world, but also “how they experience (that is, think, feel, act) it” (p. 200). As is demonstrated in Chapter 5, this is a sentiment clearly reflected in the marine educators’ narratives.

In this chapter I argue that by focusing on the marine educators’ narratives through an analytical lens of aesthetic understanding, it is possible to critique and illuminate the origins of their passion and commitment to their work. By referring to the stories of the marine educators I demonstrate the role that transformative learning has played in the development of their passions and commitments. I begin by describing this aesthetic lens, then apply this understanding to the experiences of the marine educators, looking initially at the various elements of aesthetic understanding and how these inform the educators’ value systems and worldviews. I then turn this lens to the marine educators’ pedagogical understandings and practices to understand the drivers that underpin their work.

6.1 An aesthetic lens

The term ‘aesthetics’ is derived from the Greek word *aisthētikos* meaning “perceptible by the senses”, (Dictionary.com, 2011), or “capable of sensory perception” (Uhrmacher, 2009, p. 623). The term was initially appropriated by Alexander Baumgarten, a German philosopher in the eighteenth century, who gave it a broader meaning by applying it to a specific branch of philosophy to do with art (Uhrmacher, 2009). In doing so, he expanded the significance of the terminology to refer to the complex interrelationship of the perception of beauty through cognition by means of the senses or sensuous knowledge (Darby, 2009; Speake (ed), 1984). The foundations for the contemporary meaning of the term were developed in the philosophical works of Immanuel Kant, who applied the term to judgments of beauty about art and nature. In his later work, *Critique of Judgment*, Kant (1790) argued that there were four key distinguishing features that are inherent in aesthetic judgments or ‘judgments of taste’. The first was that aesthetic judgments were
disinterested, “meaning that we take pleasure in something because we judge it beautiful, rather than judging it beautiful because we find it pleasurable” (Burnham, 2005, accessed 18 January, 2011). Hence, objects possess a quality of inherent or objective beauty.

In contrast, Dewey disdained Kant’s disinterested beauty concept, preferring the view that beauty is appreciated and perceived through the eyes of the individual rather than the object holding innate beauty. He termed this ‘aesthetic experience’ signifying “experience as appreciative, perceiving and enjoying. It denotes the consumer’s rather than the producer’s standpoint” (Dewey, 1934/1980, p. 47). According to Hobbs (2012) this means that “the individual acts as agent in their perception of the experience, and this agency involves both cognitive and affective dimensions” (p. 2). Dewey’s epistemology refuses to separate cognitive and discursive ways of knowing from affective and aesthetic understandings. As he tells us, it is through the combination of these elements that the integrity of an experience is maintained (Dewey, 1934/1980).

There is an expanding body of literature that draws parallels and linkages between the fields of Arts and Science by exploring the role that “aesthetics, creativity, passion, beauty and art play in the lives and learning of scientists” (Girod et al., 2003:575). Some authors have extrapolated this further by using this framework to understand the impact aesthetic experiences have on science (or mathematical) education and learning (for example Darby, 2009; Girod et al., 2003; Girod & Wong, 2002; Jakobson & Wickman, 2007; Pugh & Girod, 2010; Wickman, 2006). It was Girod & Wong (2002) that theorized that, by borrowing “from aesthetic and artistic pedagogy” to teach science, we are enabled to “tap the power of aesthetic experience”.

*These experiences can be the basis for a powerful, different kind of understanding – aesthetic understanding (Girod & Wong, 2002, p. 200).*

### 6.2 Aesthetic Understanding

Aesthetic understanding draws on Dewey’s epistemological theory of aesthetics. In doing so it combines conceptual knowledge with a deep awareness and appreciation for the inherent “beauty and power of ideas” (Pugh & Girod, 2010, p. 12), (that is more aesthetic ways of knowing), that causes a transformation in the way we experience or perceive the
world. As a result of this change in perception of both ourselves and the world, we invariably develop a renewed (or new) excitement and interest in the world around us (Pugh & Girod, 2010). It is almost like a light switching on inside of us that adds clarity to our thoughts and understandings that was lacking prior to the transformation.

Not every experience provides the opportunity for transformation. As Dewey tell us “(t)he belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative” (Dewey, 1938/1988, p. 13). Many experiences fail to develop beyond an inchoate stage thereby constraining us to remain ‘unconscious’ or deeply unaware of our surrounds. This is the nature of ‘ordinary experience’ where, although we may be actively involved in the process, the value and significance remains external to ourselves. There is no coherence, flow or development occurring, even though the activity(s) may happen over time (Girod & Wong, 2002).

In contrast, in an aesthetic learning experience, the inner emotional world would be continuous with the outer world to the point where they could not be considered individually (Darby, 2011; Wickman, 2006). Dewey (1934) described criteria for an ‘educative experience’ that included not only “learning by doing”, it involved integrating the unique experience with mind and emotion and enabling it to continue until fulfilment or until the experience “is so rounded out that its close is a consummation and not a cessation” (Dewey, 1934, p. 35).

Such an experience is a whole and carries with it its own individualizing quality and self-sufficiency. It is an experience. (Dewey, 1934, p. 35)

This concept is expounded upon in the principle of continuity of experience, or the experience continuum, which Dewey tells us is scaffolded by the fact of habit (Dewey, 1938/1988). The key characteristic of habit, according to Dewey, is that every experience that is encountered changes both the individual that undergoes the experience, but also, because of this modification to the individual, affects the quality of any subsequent experiences (Dewey, 1938/1988).

From this point of view, the principle of continuity of experience means that every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after (Dewey, 1938/1988, p. 27).
According to Girod & Wong (2002), educative experiences are much more than simply events that occur. Instead they possess a forward movement that has a degree of unity of its elements that freely flow “without seam and without unfilled blanks, into what ensues” (Dewey, 1934, p. 36). In doing so, these experiences take on a sense of possibility or of anticipation of what could be and of how things could develop and unify, thereby, becoming “an act of thinking and meaning” (Girod & Wong, 2002, p. 203). Learning, therefore, becomes something to be experienced when the world is viewed through the lens of aesthetic understanding.

The discussion in this section has centred around framing the literature. In the next section, the focus moves to discussion of the data when viewed through an aesthetic lens.

6.2.1 Aesthetic understanding of the marine educators

During the course of the interview with Patrick, he related a learning experience that provides an example of aesthetic understanding or an aesthetic experience (as Dewey refers to it). Patrick was about seven years of age when he and his father were shovelling sand out of a river bed and discovered a Christmas beetle. Not knowing what the species was they sent it off to the museum for classification. On the surface, this seems simple and uneventful, except that Patrick’s father made it eventful by showing excitement and curiosity over the find, and building a significant amount of anticipation into the experience. "And there was a Christmas beetle of some sort and I remember my dad caught it... and looking back on it, it was like the perfect interpretive technique. He did the whole excitement thing and didn’t know what it was and… ended up putting it in a matchbox and we sent it off to the museum in Victoria because he was sure this was a new species and they’d name it after me. Very, very cool! And I’ve still got this image of him, beetle in the red-head matchbox and we never heard back from the museum, of course. But it didn’t matter. The idea that it’s possible still that at some level there’s a matchbox deep in the bowels of the museum that’s yet to have my name put on it, is pretty great! [S1PO’C: 93-94]

Patrick’s description points to some key features of this experience. First he described the compelling drama of finding the beetle and sending it to the museum. In waiting for the response, anticipation was built, that never fully dispersed throughout his life. Second, by
being swept up with this experience, Patrick’s view of the world was altered and, as a result, so were subsequent experiences, until new habits or ways of seeing and dealing with the world, became firmly established as part of his psyche and value system. This is evidenced by the response he gave when I asked him to reflect on his childhood experience with the beetle. Patrick responded that it gave him an appreciation of small things and delight in discovering the unique. For example, he was drawn to animals that were a little more obscure rather than those that were considered necessarily charismatic.

I suppose in terms of appreciating small things, I’ve always been a bit of a metaphorically anti-dolphin-lover person, cause, ecologically, who cares? … I suppose I get more excited about sipunculids…or something like that. There’s always that kind of stuff. And the new things that have yet to be discovered. And so its stuff like that that really switches me on a little bit more rather than the broader numbers. [S1PO’C: 99-100]

Thirdly, Patrick encouraged those around him (particularly his staff) to look for opportunities to create special moments for people in order to help them connect to the natural world. He believed that these moments or learning experiences could be achieved by using unusual animals to create a sense of discovery for the participant – not unlike that which he, himself, had experienced as a child. This reflects a unification of his own personal experiences with his passion for teaching:

I really encourage staff to look for those opportunities and to create those special moments… almost using obscure animals to set up what can be very unique moments of discovery for the participants. Everyone has seen a bloody dolphin. It’s a dolphin. Big deal! If you’ve got something that is possibly brand new or no one knows anything about it, then there’s that sense of excitement. Personalizing the experience - I think that’s really good! [S1PO’C: 102]

The three elements that I have drawn from Patrick’s narrative, are reflected in the framework for aesthetic understanding that Girod, Rau and Schepige (2003) and Girod and Wong (2002) proposed. By drawing heavily on Dewey’s theory of aesthetics, these authors theorized that all aesthetic understanding comprised three important qualities: 1) they are dramatic and compelling (that is, they link emotion, action and cognition); 2) they are transforming; and 3) they are unifying. In the next section, I expand on these concepts and draw parallels with the experiences and understandings reflected in the narratives of those I have interviewed in this study. In doing so, I focus on the elements that draw these individuals to marine education and keep them inspired and motivated.
6.2.2 Drama, compulsion and passion

Girod et al. (2003) tell us that experiences framed by aesthetic understandings are “necessarily saturated with emotion” (578). In such an experience we tend to become totally immersed in the action or event; we get swept away into the delight of, what is for us, a new way of experiencing the world. A great deal of anticipation of what will unfold next, of the possibilities that could occur, is built into such an experience. It is at moments such as this that emotion, cognition and action are fused creating a deep and memorable experience that is meaningful for the participating individual – a dramatic experience. “This renewed seeing, if you will, provides drama to ordinary events and interactions and compels us into further engagement with the world” (Girod et al., 2003, p. 579). This was reflected in Susan’s narratives when she referred to a past occurrence as being “one of the most powerful experiences” [S1SS: 49] that she had had during her working life.

In my conversations with Susan, she related a story of when she worked in a public education capacity with cod fishermen, who were experiencing severe problems with whales getting caught in, and destroying, their fishing nets. This meant that the cod traps could be out of the water for up to 3 weeks of a five week fishing season which led to intense and conflicting concerns and emotions on behalf of the fishermen and other stakeholders. By working with the fishermen to devise a program to safely and effectively release the whales from their fishing gear, she came to understand the complex inter-relationship of elements that these people had to deal with in their lives including “the conflicting public views of what they do”.

So the frustration level was intense for them and they were desperate, they were shooting whales - and, of course, this made the front page of the national newspaper. So that whole time was...it really impacted me strongly and I think helped me... I guess made me fall in love with the marine environment, but also made me ... better at looking at all of the perspectives of an issue. [S1SS: 50-51]

According to Dewey (1934) such experiences are not an end state. Instead they propel the individual to seek other experiences. It is not enough to simply “get it” and to stop there, drawing the experience to a final conclusion. Rather, more thinking and action are generated as people question the potential path to follow or how these new understandings
can be utilized. The individual becomes more sensitive and responsive to certain conditions while becoming immune to others that might have been stimulating had the person not undergone this aesthetic experience (Dewey, 1038/1998, p. 30). Girod & Wong (2002) refer to these aesthetic experiences as “spiralling” as they compel people to seek out other experiences. It is in this way that experiences that lead to aesthetic understanding become both dramatic and compelling.

Patrick’s interaction with the Christmas beetle discussed above was a clear example of a dramatic and compelling experience. It deeply embedded a number of emotions, predominantly anticipation in its many and varied forms, and excitement. It propelled Patrick to find more such experiences, sensitizing him to opportunities to learn more, and opening further potential pathways to him. It inspired him to become deeply connected to the natural world – to become passionate about it. He talked of a ‘personal element’ that stemmed from a deep emotional connection to the subject matter and the extensive fulfilment from the act of doing that urges people to learn more.

Imagine the spectrum of endeavour - that we’ll call “marine endeavour”. There’s a personal element of that which is really essential, where you have this immense satisfaction from what you do… that is what drives you to learn more, which makes it more satisfying…[S1PO'C: 120]

Girod et al. (2003) discuss how some scientists “portray science with an opposing personality – one that draws us in, begs our curiosity, passion and emotion” (p. 575). According to Darby (2011) this understanding of science has the potential to improve the quality of the learning experience if it is translated into the classroom. The evidence from the interviews I have undertaken in this study indicate that this theory can be applied more broadly by including any aesthetic learning experience – whether it be inside a classroom or outside in nature; in a forest or knee-deep in a pond; as a child or as an adult. A deep understanding that combines the qualities of an aesthetic experience (that is both cognitive and affective) can lead to an equally deep connection and passion for the object, event or action that allowed the understanding to take place.

The connections that result from such experiences can lead to long-term commitments. In researching teacher’s aesthetic understandings, Darby (2011) talks of the emotional
commitment that the individuals express. In a similar vein, the marine educators that I have interviewed all exhibited or expressed a deep emotional commitment to their work. They all showed evidence of a deep emotional bond to the subject matter (in this case the coastal marine environment), a passion for promoting the understanding and engagement of others in the subject matter, a passion to connect others to the earth, each other and particularly to the coastal marine world, and a passion to actively bring about change in people’s attitude and actions to preserve and conserve the environment.

In reflecting on the interviews, these ‘passions’ exhibited or expressed by the marine educators bifurcated and emerged into two strong aspects. The first aspect that became apparent was the passions that resulted from their personal experiences, knowledge and connections. This was well represented when the respective individuals spoke of their own love of the marine environment and the driving forces that impelled them to learn more and do more both in and around this setting. One particular conversation with Rick was revealing in providing insight into where this type of passion originated, and where it could lead. Rick espoused his belief that involvement in the marine education field generally began with a deep love of marine organism. From this mutual starting point, individuals were inclined to go in different directions, following their own pathway but retaining the emotional commitment to their work.

*I think almost all of us come at it from a somewhat romantic relationship with beasts - with place and with beasts. You talk to Gloria, you know, when she started stumbling on marine animals, and Bill Austin with his hexactinellid sponges... you know, we all have this thing, usually around marine invertebrates actually because they're so much more interesting than vertebrates... I think sometimes when we go in different directions – it's where we go from there. Some people get involved in advocacy projects and people get involved with restoration projects. Other people sort of go into analytical projects, you know, from sustainability kind of stuff. But we all start from the same... just really love being down there in those low tide environments... to just see these extraordinary organisms. And for some that may be simply enough. [S2RK: 68-69]*

It is this passion that all of the marine educators have spoken of in one form or another. As is clearly framed in Rick’s description above, this personal passion stems from the individual marine educators’ understanding and appreciation for the marine environment that inspires anticipation and excitement within them. Further evidence was provided in
Gloria’s comments about how she maintained her enthusiasm when dealing with an exhausting workload:

You know you can think about going to international conferences, you can think about writing books, but I think it all starts from just being really, personally excited every time you go to the seashore. You know it’s just having that kind of really genuine appreciation of the marine environment and that you’ve got to be able to communicate that for the rest of us, and that’s the passion of it, and if you don’t have that you’re not going to get anywhere. [S1GW: 114]

This comment from Gloria highlights the dual focus of the passions exhibited by the marine educators. They are passionate about the marine environment – as evidenced by both Rick’s and Gloria’s comments above about possessing a “genuine appreciation” of the marine environment or simply “love being down there” immersed within the ecosystem. Similarly, they are passionate about their work as educators.

This second aspect (or dual focus) that emerged from analysis of the theme of passion within the interviews was the existence of a driving desire for learning and education; for inducting others into this learning; and for their work as educators. Mirroring the theorizations of Dewey (1934) and Girod et al. (2003) discussed earlier, the marine educators’ compulsion to pass on their understanding and appreciation – their passion – for the marine environment qualifies as evidence of the compelling power of their personal experiences. Patrick, for instance, talked about an experience that enabled him to bring together his discovery of the marine world and his commitment to teaching. By taking a group of students’ snorkelling for the first time he was able to share his love and passion for the marine environment – even though he had never been snorkelling before himself.

I’d never put my face under the water. Never been snorkelling before…. And then to my first snorkel and I’m with a group of Year 11s from somewhere and we’re at Pope’s Eye (marine reserve) and I’m watching the guys on the dive boat telling these Year 11s how to get their gear on and taking very careful little notes… and we all jump in the water and I totally freaked out. It was fantastic! It was the best thing I’d ever seen! So I went ballistic. I loved it! And then proceeded to, somehow, share that excitement (and lack of knowledge!) with all these year 11 boys that were kind of following behind me, with me pretending that I knew something about what I was talking about. [S1PO’C: 44]

Patrick’s narration of this incident indicates that for him it had become a powerful aesthetic learning experience that he then needed to share with the boys he was with. In doing so,
Patrick utilized his newly acquired aesthetic understanding to inform his pedagogy. This reflects Girod & Wong’s (2002) theory that such experiences have a compelling nature that propels the individual forward into thinking about ideas and wanting to talk about them; to “have ideas on the brain, which is an indicator of the compelling, forward-looking nature of experience” (p. 207).

6.2.3 Unification/ Coherence

Extrapolating on the theories of Girod & Wong (2002) and Girod et al. (2003), the element of unification or coherence inherent in dramatic and compelling experiences can also be viewed as consisting of a number of encompassing aspects. Unity was expressed in the interviews in a number of ways. Upon reflection it was clear that some of these aspects shared common characteristics so that two clear categories could be defined. The first category was the unity that manifested when the individual comes to understand or ‘know’ their world. The second category involves coming to know self and incorporates the unity that occurs when we ‘know’ or gain insights into how our understandings inform our actions and values. This is evident in the marine educators’ stories when they spoke of the understandings they developed regarding their worldview; their actions; their pedagogy; and their careers.

First there is a unification of the individual’s knowledge or understandings of the world. According to Girod et al. (2003) an aesthetic understanding depends upon developing a coherence of the parts, ideas and concepts that formulate our ideas of the world, their relationship to each other, and our role within this relationship. This is evidenced in the marine educators’ explanation of their understandings of the inter-relationship of natural ecosystems, specifically the connections they made between the marine environment and the rest of the world. The general understanding was that everything is interlinked and impacted on each other as a result. Mark encapsulated this when he spoke of the progression towards an “integrated catchment or integrated coastal zone management which is from the top of the catchment to the bottom of the deep blue sea. I think there is a very clear continuum between these environments”. He later expounded on this understanding by referring to the linkages that can be made on a global scale:
But you know the reality is that the planet is one interlinked system with the parts interlinked with each other. You can’t affect one without causing an effect on the other. So if you’re going to be holistic about it you need to think about the whole planetary context. [S2MR: 10]

Similarly, Geoff referred to his understanding of the inter-connectedness of marine ecosystems and how this underpinned his values and his view of the world. He described himself as having a “background of integrated marine and coastal material” and argued that it was necessary to view these environments as a total unit where “the two of them should fit side by side and be seen as such”. In discussing this understanding during the interview, Geoff came to a new insight concerning the relationship between his comprehension and attraction to this way of knowing and his personal value system:

… I suppose that’s one of the attractive fields for me about coastal marine management is that the concept of integrated coastal management, which includes marine waters of course, is very clearly a conservational sustainable use based concept. So, if you like, the theoretical global concept that is used is completely underlined by a sustainable use ethic. So my values are very easily suited, I suppose it’s just a very neat fit. I haven’t thought of it that way. I’ve always thought this is the way you would do it anyway and this is the way the international community does it. There’s very little choice. There’s got be some sort of sustainable use. [S1GW: 39]

This highlights another aspect of unification which occurs when our personal knowledge and understandings of our personal actions unify. When we gain insight into our way of being in the world and gain some comprehension of our behaviour and actions and their resultant ramifications. According to Polanyi (1959) this insight is experienced “as comprehending”, or the “grasping of disjointed parts into a comprehensive whole” that is “manifestly personal” (p.28). Intrator (2003) describes these as “episodes of understanding” that are particularly powerful for young people. Comments made during the marine educator’s conversations in this study indicate that they also found such episodes to be extremely powerful. For instance, Rick related his experiences of bicycling to work explaining that it was this action (“…an aggressive 40 minute bicycle ride…”) that enabled him to understand his role as an environmental educator.

I’ve lost 10 pounds since I started bicycling here. But now I can’t not bicycle here. This is ‘in the doing’. I’ve really come to the understanding that how can I be teaching environmental education and be driving out here every day? I couldn’t look at myself in the mirror in the morning. So I do it. And through the deed there really comes understanding. [S1RK: 119]
Rick’s comment highlights that the experience of bicycling to the University has provided him with a deeper understanding of the world and of his place within it. By living out the message he was promoting he created a unity between his knowledge and action. It is this unity that has informed his sense of identity in such a powerful manner that it is now difficult for him to divorce his identity of self from his actions. By undergoing this experience he has gained insight into his way of being in the world and a resultant further unification of his understandings has come about.

In a similar vein, the marine educators’ personal beliefs, underpinned and bound by their perception of how people learn, scaffolds their pedagogy – their pedagogical epistemology\(^{26}\). This aspect of unification was evident in Patrick’s narrative (discussed above) of his experience snorkelling for the first time. By conveying his excitement and wonder at his first experience of snorkelling (and his limited knowledge) to the boys he was leading, Patrick created a dramatic and compelling experience. In doing so, he drew on his personal aesthetic experiences (for example, his interactions with the Christmas beetle) to inform the pedagogical approach he adopted in his teaching practice. This unity of personal beliefs with pedagogy enabled Patrick to create opportunities for his learners to share a similar experience of aesthetic understanding.

A further aspect of unification involves the way individual’s experiences are brought together over time, or their personal life story, highlighting the path that directed them to where they are currently. This takes place over a much longer period of time and requires the essential element of reflection. An example of this aspect was when Mark referred to an event that allowed him to combine his passions whilst drawing on the knowledge and connections he had made throughout his life. When he left his school-based position to take up an educational role at the Marine Discovery Centre in Queenscliff, it brought together his teaching experiences and his deep connection and commitment to the marine world. In doing so, it opened up a wealth of opportunities and future experiences that led

\(^{26}\) Gilbert (1976) defines ‘pedagogical epistemology’ as “a theory of knowledge as it relates to the requirements of an education” (31). In using this term, I refer to the fundamental beliefs of learning that underpin the interviewees’ teaching.
Mark to move forward with a transformed and unified perception of his relationship to the marine environment.

*I was fortunate in actually getting a job at the Marine Discovery Centre at Queenscliff and that was where it all really came together. It was the greatest change in my life in terms of having the opportunity embedded in a marine education organization. It was a steep learning curve. I spent most of my spare time reading about, talking about, living and breathing basically marine stuff generally and that basically led to a few other things… opportunities to travel overseas, and I got involved in the Marine Education Society of Australasia (MESA). And, yeah, basically found it to be very exciting, very convenient, something which obviously gave great opportunities to make a little bit of difference and something that I had a bit of a personal passion for.* [S2MR: 37]

This excerpt from Mark’s narrative reflects an aesthetic experience that is connected to a particular time and place, and one which drew him forward to new experiences. It is what Girod et al. (2003, p. 578) tells us is an experience that has “a unique wholeness that we can call unifying”. Mark’s already established deep understanding and connection to the marine environment and marine education, led him into future experiences with a transformed and more unified vision of marine relationships. From early childhood one of Marks spare time activities was snorkelling and discovering (or re-discovering) the marine life of the country he was in at the time. This extended through his teenage and university years, to adulthood, continually contributing to his way of understanding and knowing the world he was in.

*At high school I went to a school that was actually on the coast and one of my spare time activities was actually again snorkelling across the road in Mentone and looking at the wonderful marine life of Victoria. I didn’t actually know what I was looking at but it was just something I used to like and enjoyed doing. At University I took on some extra subjects in marine ecology and marine botany just because of a personal interest. Not for any other reason other than I found it fascinating.* [S2MR: 31]

Thus, Mark was able to unify his knowledge, actions in snorkelling, and choice of subjects. This unification shaped the way he came to see himself, which in itself, illustrates transformation.

This aesthetic understanding was echoed in Rick’s explanation of how his understanding of the concept of place and rightfully belonging to a place had completely changed his perception of the world. In undergoing this experience, a unification of how he thought and
felt about the area where he now lives occurred. He realized that this was an important aspect of his life, and in doing so, became ‘awake’ to the ramifications of this realization – that he was not prepared to leave; that this was where he felt he ‘rightfully’ belonged and, as a result, it altered how he saw and interacted with the world.

I have chosen to live my adult life not moving from community to community in search of career improvements but I realized this was where I wanted to live because of this place and because of these creatures that I see every year down in the breakwater and off the point. And that to me is just like a hugely powerful part of my life. That I wasn’t prepared to take jobs elsewhere and just become peripatetic. This was my place. And so that really informs a lot about how I see things. [S1RK: 20]

Drawing on Dewey’s theory of aesthetics, when we have an experience such as Mark’s or Rick’s, it is uniquely unifying as it merges continuously onto new experiences. It is also all encompassing as “(i)t is not possible to divide in a vital experience the practical, emotional and intellectual from one another” (Dewey, 1934/1980, p. 36).

6.2.4 Transformation

Dewey, amongst others (for example, Darby, 2009; Darby, 2011; Girod et al., 2003; Pugh & Girod, 2010), describe how learning can be transformative. If the learning experience incorporates the core elements of aesthetic understanding (that is, it is a dramatic and compelling experience that involves unity of the cognitive, affective and physical aspects of the learner), it has the potential to be a transformative experience. Harry’s encounter diving in a deep-sea submersible as part of a marine science expedition is an instance of this transformative nature.

As the international educator (‘Teacher at Sea’) on board a USA deep-sea research vessel, Harry had the opportunity to travel in a manned submersible to survey ‘the gelatinous life in the deep canyons on the outer edge of the Gulf of Maine’ (Breidahl, 2011).

…I spent 3 weeks working with Marshall and the deep sea exploration crews and a whole new world was opened up to me. And there’s several components to that. One is the coasts are very different ecological settings to open oceans. Just getting into a submersible and diving down to a kilometre during the day you can see forever. It’s astounding! [S1HB: 89]
This proved to be a transformative experience for Harry, opening up new ways of seeing the world that he had not previously encountered. As his predominant preceding experiences revolved around the coastal environment, being introduced to the deep-oceanic ecosystem was a dramatic occurrence. Anticipation and excitement were embedded in Harry’s experience, as were emotions of wonder and joy of discovery. This was clearly illustrated in his description of the organisms they found and the impact this had on his understandings of himself and his identity.

...the second thing was this whole concept of mid water life, all these gelatinous creatures that I’ve sort of read about. Jellyfish, Siphonophores, ctenophores, appendicularians, all sorts of amazing critters and we were collecting them and every second dive we were finding something totally new to science. So to be exposed to all of that as a marine freak, as an educator, as a science communicator – it was just stunning! [S1HB: 91]

This dramatic experience incorporated a unification of elements of cognitive (seeing organisms Harry had only read about), affective (instilling a sense of wonder and excitement) and physical (going beneath the sea’s surface). For Harry, this was a transformative experience that he wanted to share with others around him, and one that informed (and unified) his pedagogical understandings.

Deweyan epistemology (as cited in Girod & Wong, 2002), describes how an individual acting on the world is, in turn (and necessarily), acted upon by the world. By undertaking a meaningful action and reflecting upon it, we develop our aesthetic understanding of the world. In developing our understanding, we see the world in a different way so that it is not the same place we initially started. As Girod et al. (2003) so succinctly phrase it, “(k)nowing changes the individual as well as the individual’s world” (p. 578).

The experience Harry had with the deep sea exploration expedition changed his perception of the world by allowing him to see the world differently – from an alternative perspective. This, in turn, transformed Harry’s world so that it was not the same place he was in before experiencing this dramatic occurrence that is, travelling to the depths of the ocean in a two-person submersible.
The transaction between individual and the world leaves neither the same afterwards. The experience creates a new relationship between the individual and their construct of the world, thereby becoming transformative. Dewey (1934) described this type of experience as having active commerce with the world around us. Girod & Wong (2002) explain that this “new relationship between person and world is the “product” of learning” (p. 207). This type of experience is different to our common daily learning experiences as it extends beyond the cerebral aspects of the individual to incorporate the affective, action and perceptions of the learner (Girod et al., 2010). “A person who truly learns exits transformed, not just of mind but of heart, eye, and body. Education should leave us different; understanding more, seeing differently, and willing to act in accordance with these differences” (Girod et al., 2010, p. 804).

The transformative potential of experiences was clearly shown when, during our second interview, Rick talked about a learning experience that totally changed his perception of the world. When he was introduced to the scientific concept of photosynthesis, he was introduced to a new way of thinking and seeing his surroundings. This had a dramatic effect on him that he described as changing his life.

_When I was 9 years old I was living right in the middle of the City of Boston in Massachusetts and got completely cranked up. My life was completely turned around by discovering photosynthesis. I loved the word and the idea that plants could take sunlight and dirt and turn it into plants and oxygen was just amazing. It just completely changed my life. [S1RK: 8]_

The above quote by Rick reflects the depth of understanding he experienced upon discovering the scientific concept of photosynthesis. For him, this was clearly a dramatic experience that transformed his conceptualization of the world to the degree that he would never see it the same way again. It was a transformative experience that bound the individual learner (Rick) with the surrounding objects and events (discovering photosynthesis) that resulted in a change in both. It was a genuine aesthetic experience that led Rick to an aesthetic understanding of his world.

### 6.2.5 Quality of the experiences

The above excerpt from Rick’s narrative illustrates the intrinsic difficulty that exists in attempting to clearly separate true aesthetic experiences into theoretical conceptual parts.
Not only was Rick’s experience of discovering photosynthesis transformative, it was also unifying. By seeing and understanding the process of how a plant takes elements and converts them into entirely different matter, Rick was able to appreciate how formerly disparate elements fitted together. Similarly unifying experiences can be seen in the segments from Harry’s submersible story and Patrick’s narrative about the Christmas beetle explored earlier in the chapter. Girod & Wong (2002) refer to such an occurrence as consummating an experience, thereby making it aesthetic.

All three elements of an aesthetic experience – an experience that is dramatic and compelling, transformative and unifying – although conceptually different, make a coherent whole. Even though these elements cannot be clearly differentiated in reality where they are intimately and inseparably inter-twined, there is a ‘wholeness’ to the experiences the marine educators have shared with me. Rick’s story of discovering photosynthesis for the first time is a clear example of such a ‘whole’ experience, as is Susan’s description of the understandings she gleaned when working with the fishermen to develop strategies to remove whales entangled in their nets.

Cognition, emotion and practicality were unified in these experiences, highlighting that when we are totally absorbed in an occurrence all of our senses become temporarily fused, placing us in a state of heightened perception. It is when we experience a moment when our various capacities – that of thinking, feeling, appreciation – come together at once, leaving us feeling like a whole person; an ‘awake’ being. It is the ongoing weight of such experiences that lead to the construction of a deeper aesthetic understanding. Patrick illustrates this when he spoke of marrying his experiences and educational understandings that he had acquired over time. His experiences as a practicing teacher, his training as a Park Ranger, and his specialization in GIS (Geographic Information System) and endangered species management, unified to afford Patrick with a way of knowing and understanding his world.

So that whole computer end of things and really looking at systems to inform environmental management is probably my bag. And marrying that with my education practice, I’ve come to see education as one of the really important set of tools for environmental management. That’s a small glimpse into my philosophy there. [S1PO'C: 34]
It is evident from this excerpt that this unity gave Patrick a deeper understanding – an aesthetic understanding – that informed his values and sense of identity.

As we construct our world based on the information we glean from our senses, this heightened ability enables us to gain a deeper understanding and appreciation of the qualities of the surrounding environment. We are enabled to connect with the world we inhabit as a result (Eisner, 1994). According to Jackson (1998) it is only in moments such as this we experience humanity fully. In moments where we enjoy full perception of our senses and the diverse components of ourselves: “our ability to think, to feel, to appreciate, to experience through all of our senses” (Jackson, 1998, p. 149), we experience a unification or coherence of our affective capacities, knowledge, identity and external environment. “At such moments our various capacities not only are realized (that is, become real) but are also momentarily fused and unified. Only then do we experience what it is like to be fully human” (Jackson, 1998, p. 149).

Each of the interviewees talked about educative experiences that led them to an aesthetic understanding of the world around them. These experiences generally occurred in the natural environment (either with or without other people) and all led to a clearer insight into their surrounding world and their place within it. The aesthetic understandings that grew from these experiences not only changed the individual’s perceptions, propelling them to seek further similar experiences, they also created a deep connection between them and the environment.

From my discussions with the marine educators, it appears that this connection and way of seeing has informed their understandings of the world, their value system and has significantly contributed to their sense of identity. These aesthetic understandings also inform and underpin the educators’ pedagogical epistemology. Their passion for the subject matter is very clear in the way the interviewees speak – the words they use and the tone of voice. It is very easy to get swept away with their excitement and enthusiasm; in the way in which they create a reality steeped in connections and understandings. It is this sense of wonder and adventure that they aimed to embody in their educational programs and their dealings with other people.
Without exception, all of the marine educators believed that their personal experiences informed the educational programs they designed and delivered. This is not surprising given that we all tend to bring our own experiences, attitudes and values, passions and enthusiasms, into our work, particularly if it is something very close to our hearts. The marine and coastal environment is clearly very close to the hearts of those interviewed here. It is the appreciation and love of this environment that instils within the educators a passion to engage others and assist them to form connections to the coastal marine world. It is this passion that informs their pedagogical epistemology.

6.3 Aesthetics and Environmental Education Theory

The processes of aesthetic understanding – passion, unification and transformation – can provide a powerful new perspective on the conceptual frameworks commonly advocated for environmental education. While environmental education theory provides a framework for approaching the provision of experiences, aesthetic understanding provides a framework for considering the preferred outcomes of such experience. The theory that aesthetic experiences are dramatic and compelling, transformative and unifying and, as a result, change the way the participant sees and interacts with the world, is mirrored in the models proposed by environmental education researchers (Farmer et al., 2007; Hungerford, 1996; Stapp et al., 1969) to affect pro-environmental behavioural change.

As discussed in Chapter 3, the theory that environmental education should occur “in, about and for the environment” is deeply embedded within the field’s epistemological understandings. The notion that the key elements of awareness, knowledge, attitudes, skills and participation are the means by which individual’s adopt pro-environmental behaviour is also well-understood, as is the need to connect emotionally to the environment. This concept is illustrated when during his interview Mark described his work with the Queenscliff Marine Discovery Centre. Mark saw the role of the Centre as providing opportunities to schools and the general public to enhance their appreciation, awareness and understanding of the marine environment with a long term view towards promoting pro-environmental behaviour. By encouraging this deeper understanding, he
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I theorized that people would be more likely to form more considered opinions and to make informed and responsible decisions regarding the marine environment.

*I worked on the education centre for the Marine Discovery Centre, which is involved in both providing schools programs as well as providing opportunities for the general public to become aware, appreciate, and get a great understanding of their local marine environments with a long term view towards changing behaviours and encouraging people to look after the marine and coastal environment in a more responsible way. Making decisions – helping people to consider or to really... to bring to the front of people’s thinking when they’re making decisions that may influence marine or coastal environments and that’s the sort of project we’re trying... to learn different ways that will help with awareness, and to help with the public conservation aspect of it. [S1MR: 26]*

Fundamentally, both the theories of environmental education and aesthetics aim to expand and deepen the learner’s interactions with the world. Both incorporate complex learning paradigms that are based on a dialogical process that takes place between the person and their environment. Embedded within this process is the understanding that a meaningful connection takes place at a number of levels (cognitively, emotionally and physically) that transforms the learner’s perceptions of both the world and themselves as knower.

The objectives of environmental education are powerfully understood through a lens of aesthetic understandings. By providing learners with experiences that have dramatic and transformative elements, we assist them to develop connections with the environment that are potentially rich in content knowledge as well as affective elements. In creating these deep connections, people develop a sense of ownership that inspires a desire to protect these environments and to act accordingly. Calvin’s reflection on the growth of eco-tourism in British Columbia and its resultant benefits of citizen advocacy for the marine environment provides insight into how such connections can achieve environmental activist (and education) objectives.

*...the whole eco-tourism thing was not big in BC 12 years ago, for example, and now a lot of these communities... that’s the way they’re making their money. It’s the eco-tourism and it’s great cause it’s getting the local guys out - who used to be fishermen – out into the environment and realizing what an asset they have there. That they don’t have to kill it - that asset - but just show people this asset. So eco-tourism is a big deal now. And of course, once you get people out there and worldwide, when you want to protect an area you’ve got fingers around the world that can come back and tell the government: “you should protect this area”. [S1CP: 172]*
The theory of aesthetic understanding provides a rich sense of: 1) the process advocated in environmental education, that is, the concept that awareness leads to knowledge, resulting in an attitude transformation that ends in behavioural change and pro-environmental action; and 2) the unity of the end point, that is, the unification that occurs when knowledge and action merge to create a deep understanding and connection between the learner and the environment. It is simplistic to view the elements of this environmental education model as a progression of steps or stages that are required to occur in consecutive order for the end point (that is, action) to result (McBeth et al., 2008; McBeth & Volk, 2010).

Science education tends to reflect an objectivist perspective with an emphasis on the rational conceptual in considering any environmental issue. One school of thought suggests that environmental education was born out of the field of Science and, to an extent, still draws on this historical scientific methodology. Looking through an aesthetic lens helps to see a link between the conceptual knowledge and values and emotions that are inherent in the processes of the environmental education model. As an individual connects to an environment through meaningful aesthetic experiences, they become attuned to other aspects (that is knowledge or further events) related to this environment, eventually consciously seeking further opportunities to connect; a Deweyan spiral occurs. Once this deep connection is made it becomes impossible not to see the environment, and themselves in relation to the environment, in a different way and to act accordingly. Thus, the flow from environmental awareness/knowledge to action becomes apparent.

The model of knowledge-attitudes-action that informs the environmental education field is illustrated in the discourse with the marine educators interviewed in this study. The connections and aesthetic understandings that have underpinned the marine educators interpretation of the world (discussed above), offers a powerful perspective for understanding the environmental education model. This aesthetic perspective offers an explanation about the connections that are required to bring about a shift in perception and a move to pro-environmental behaviour.
6.4 Narratives and experiences

Connelly and Clandinin (2006) argue that to be human is to be a storyteller and, as such, to lead storied lives both individually and socially. Drawing from this theory, narrative then becomes a component of how people make sense of the world they inhabit and convey that understanding to others (Avraamidou and Osborne, 2009).

According to Bruner (1986) humans order experiences in two distinct ways: paradigmatic and narrative. In ordering paradigmatically, thoughts are structured in a logico-scientific way that is based on reasons, while narrative refers to the creation of stories to sculpt and structure information into easily understood formats (Avraamidou and Osborne, 2009). The use of narrative to interpret the world and make sense out of information and experiences that we may encounter remains a traditional and common practice throughout the globe. Building on this premise, Bruner (1987/2004) proposed that a life (and its experiences) is not “how it was” but how it was portrayed, and that it is how we interpret these events that guide or direct our future experiences.

I believe that the ways of telling and the ways of conceptualizing that go with them become so habitual that they finally become recipes for structuring experience itself, for laying down routes into memory, for not only guiding the life narrative up to the present but directing it into the future. (Bruner, 1987/2004, p. 708)

Drawing from this, narrative then becomes an inherent element of how people understand their world, how they communicate this comprehension to others, and how it directs their understandings in the future. Narratives have the power to provide an over-view of a situation, an experience or a life, and “can even stimulate passions in their most dramatic form” (Boström, 2008, p. 401).

This conjecture was evident in the stories told by the participants in this study. All of the interviewees related their experiences and understandings as stories, even appearing to find difficulty in addressing themselves to categorical questions that required a short answer response. Many also prefaced their responses with “since you are a story kind of person” indicating that they had identified me, as researcher and interviewer, as similar to themselves, recognising that I also understood my world through narrative.
Throughout our lives we undergo a number of experiences that shape our understandings of the world and the connections we make with it and within it. These experiences shape our sense of self, place and belonging, and our ecological and social identities. Examples of such experiences are evident in the marine educators’ narratives, some of which are drawn from their early childhood (for example, Rick’s deep understanding of the scientific concept of photosynthesis; or Patrick’s interpretive experience with the Christmas beetle), while others are taken from memories of adult encounters (that is, Harry’s deep sea experience in an exploratory scientific research submersible; and Susan’s understandings from working with fishermen to release whales from their nets). In the next section I will look at the nature of these experiences that were particularly influential to the marine educators.

6.5 Significant marine experiences

As discussed, the people interviewed in this study are very passionate about marine education. The question arises as to where this originates. What are the influences that took place to inspire and encourage such a connection to this environment? This section will investigate these influences and explore the notion that such significant life experiences are aesthetic in nature as they lead to passion, unification and transformation.

In 1999, Palmer et al. published a research study partially designed to identify formative influences and significant life experiences (SLE) in the lives of environmental educators from the UK, Australia and Canada. They found that common responses were offered in the respondents’ autobiographical account of the influences and experiences that led them to their environmental attitudes and behaviours. There have been significant questions raised about the validity and applicability of Palmer et al.’s study and its methodology, particularly in relation to the original SLE research undertaken by Tanner (1980)27. However, I have found the instruments used by Palmer et al. (1999) to be useful for analysing and extricate potentially aesthetic experiences that might have influenced the marine educator’s understandings of the world. Accordingly, I have adapted Palmer et

27 that is attempting to identify the SLE that contributed to the formation of environmental activists with a view to fostering the development of future pro-environmental citizens
al.’s categories to analyse the influences described by the educators as having had an impact on them. In doing so, I identified the common factors depicted by both the Australian and Canadian marine educators as being significant and influential in framing their connections to the environment. These results have been summarized in the table in Appendix 3.

![Figure 6.1: Graph showing responses to grouped categories](image)

It is evident in the table in Appendix 3 that there were different factors that have had an impact on the individuals interviewed. However, there were also some similarities. Following the model set by Palmer et al. (1999), I have combined these single factors into groups. I have chosen not to separate the Australian and Canadian data as the number of research participants in each country were significantly disparate. Hence, the data retrieved from this process would have been statistically insignificant. Instead I have chosen to focus on the roles that these factors have played in influencing the marine educators as reported by them. The combined results are shown in Figure 6.1. In the following sections I will discuss each of these categories in turn.
6.5.1 Nature/outdoors

Figure 6.1 indicates that the interactions that the marine educators had with the natural environment in an outdoors setting proved to be the most significantly influential element for all of the interviewees. This interaction most often happened with, or in the presence of, other people and occurred throughout the individual’s various life stages, (that is, significant events were not solely confined to childhood or adulthood). All of the participants in this study spoke of memorable childhood experiences that were both influential and inspiring to them. Some talked about these experiences as if they were an expected right or cultural understanding of growing up in the country from which they originated. Geoff, for instance, explained that his interest in the coastal environment stemmed from a childhood that was reflective of a typical Australian upbringing.

I suppose my background in general coastal interest is the classic coastal cultural background: holidays by the sea side, foreshore reserves, camping holidays, swimming on the beach for summer school holidays. So I suppose that was my background up until university. [S1GW: 20]

This narrative segment suggests that Geoff’s sense of identity is strongly tied to his childhood understandings and experiences of the coastal environment. Similarly, Susan described her childhood as encompassing extensive wilderness experience in central Canada that “revolved around lakes and hills and hiking and mountains”. Although Susan had limited childhood experience of the marine environment, her understandings and connections to the natural environment provided a sound foundation to seek further comparable experiences in other natural areas.

Girod and Wong (2002, p. 223) tell us that “students who are learning for aesthetic understanding are drawn into engagement with ideas, their imaginations, and the world as they seek new and richer experiences”. Correspondingly, Rick’s dramatic and compelling childhood discovery of the theory of photosynthesis transformed his understanding of the world, and stimulated him to be open to further similar experiences. This is evidenced in his story of moving to the beach as a young teenager and, having discovered there were no marine invertebrate field guides for the area, he chose to rectify this oversight. In doing so, Rick built on his childhood transformative experience and his resultant aspiration to be a scientist.
The deep and meaningful connections that Rick made with the marine environment resulted in his decision to always live and work on or near the coast as an adult. Similarly, the other respondents expressed analogous convictions and related stories of adult experiences that occurred as a result of this decision. Patrick’s experience as a teacher snorkelling for the first time is indicative of such a decision. As discussed, this experience, imbued as it was aesthetically, proved to be a defining moment for Patrick – and, obviously a memorable and significant one.

6.5.2 People

It is clear from the marine educators’ narratives (and from the above discussion), most of the stories the interviewees chose to relate as significant occurred throughout their lives, not at any one point. They also included or involved other people.

Individual or groups of people were described by all the interviewees as having a correspondingly significant influential role. The people mentioned were predominantly other marine educators, although particular family members, teachers or lecturers were also cited dependent upon the age at which the experience occurred (that is, childhood, adolescence or adulthood). In Harry’s story of his childhood, he referred to his visits to his grandparents’ beach house. At a superficial layer the beach experiences (if they were of a deep aesthetic nature) could alone count for his passion for the coastal environment. This experience was deepened, however, when combined with a gift of a book on shells from his grandmother.

The most influence to me in the field is my childhood. My grandparents had a beach house not far from here in Frankston. So it was a holiday house right on the beach at Frankston. Every summer was spent there. And I’ve still got a book on shells, written by John Child, that my grandmother gave to me when I was, I think, 6. And it was that childhood love of freedom of the beach that made me not want to work in an office. Not want to work indoors. Not want to travel long distances to work. All of that stuff. So it was very, very much childhood experiences. [S1HB: 130]

This story excerpt indicates that a combination of people, nature and media strongly influenced Harry’s understanding of the world during his formative years, and that this influence was carried into adulthood.
In a similar vein, a significant proportion of those interviewed also related incidents where people had influenced both them and their understanding of the world. Although some stories stemmed from childhood or adolescence, the preponderance of narratives were drawn from adult experiences. Work colleagues were often referred to, such as those that Gloria mentioned as significantly influencing her and her work. Gloria spoke of a group of marine educators that, over time, have assisted each other, have co-authored curriculum materials and have, as a result, become very good friends.

Teachers and university professors were also referred to as sources of inspiration. During Calvin’s university years, for instance, a professor encouraged him to view the world from a different perspective, thereby influencing his understanding of the world.

…I had one professor in particular, who was American, native Indian, and he was teaching up in Canada. And it wasn’t his courses that got me actually interested, cause we had a small group of guys that use to go bird watching and he was a bird watcher. And we came over here to Victoria and bird watched and went to Bamfield, of course, because we were a marine group. But he just had a different outlook on life, I think – completely - than I had ever noticed in my life - being a native American. And he was also a guitarist. And he quit being a marine prof and went back to Los Angeles and joined up a rock and roll band... But I think that was one person. [S1CP: 56]

The way Calvin describes this teacher suggests that his American Indian background informed the teacher’s world perspective. It also indicates that it was this view that encouraged Calvin to broaden his own understandings of the world; to see things differently.

Other interviewees also cited experiences with indigenous peoples as being influential, specifically, Rick and Gloria, who both gained insight into the meaning of place and what it meant to them through their interactions with indigenous communities. From these exchanges and the understandings he derived from them, Rick formulated a strong sense of place that underpinned his world view and informed his adult decisions, particularly those regarding where he worked and lived. Similarly, Gloria’s experiences with the First Nation’s people in the natural environment enabled her to gain insight and connect with aspects of herself and with her surrounding world.
Chapter 6: Emerging Atlantis:

That's why we always go back there because somehow it's a renewing kind of a thing. There's that kind of a spiritual thing that happens and that does happen with me. And it happens a lot with the Native people and I think that for me, it's an awakening of the spiritual aspects of myself, and others. Not in a religious sense, but in a sense of what makes me feel connected to the universe, to nature, to other people, and to all living beings. It's a certain wholeness that needs to be put back into education. [S1GS: 87]

6.5.3 Education

In a similar vein, educative experiences were related as influencing the marine educators either during adolescence (that is, three at secondary school,) or throughout adulthood (that is, six at tertiary level). These experiences, however, appeared to be more dependent on the individual teaching the class rather than the content matter of the course itself. Rick's experiences during high school and university are testament to this theory. He spoke of 'incredibly powerful' teachers (both at secondary and tertiary levels) that offered opportunities to explore the marine environment and actively encouraged him to build on his knowledge through undertaking original research.

6.5.4 Media

The influence of media either in the form of books or television programs, were cited as significant factors only during childhood. The most mentioned examples were books (both fiction and non-fiction) and sea-based documentaries; Rachel Carson's books were the most frequently mentioned, as were Jacques Cousteau’s television documentaries. Geoff explained that the work of these two marine biologists had an impact on him as a developing child, as did the writings of John Steinbeck, particularly those about coastal environments.

Rachel Carson’s book, ‘The Sea around Us’, I think it was. I mean Rachael Carson, better known for her DDT and other works like ‘Silent Springs’, but a marine biologist and writing about the sea! That was one of the first influences on me. Now that was in the 1960s I would think when she wrote that. I was also personally influenced by John Steinbeck and his writings on the Pacific Coast Monterey Peninsular. Cousteau – can't get by without mentioning Jacques and the whole TV series. So I mean there's those sorts of background influences globally. [S1GW: 44]

28 Although Patrick did cite the Australian children’s television series, ‘Skippy’, as inspiring him to want to become a Park Ranger.
Similarly, Mark related how he would watch Jacques Cousteau documentaries on television as a teenager, which promoted his interest in the marine and coastal environment. According to Mark, these programs made the underwater environments accessible to the broader community thereby allowing the viewer a glimpse of life under the water that they would not necessarily have had otherwise.

No reference was made to media providing a significant contribution to any of the interviewees' understandings of the world during adulthood. However, many of the marine educators expressed the need for a charismatic activist and educationalist, like Jacques Cousteau, to champion the marine environment and to inspire future marine biologists.

6.5.5 Work
Seven of the study participants considered work experiences to be a predominant influential factor solely in adulthood. Once again, though, a significant proportion of these experiences included other people. This is evidenced through Geoff’s story of working with the Public Interest Research Group and how this “switched” him onto coastal environment management planning. In the same way, Susan’s claim that the public education work she undertook with the cod fishermen in Canada (discussed above), inspired within her a deep connection to the marine environment.

6.5.6 Experience and aesthetic understanding
According to Intrator (2003) occurrences that possess an aesthetic quality are particularly powerful during an individual’s formative years. This was highlighted in Harry’s narrative when he commented on a series of books he had authored about a range of biological organisms. In each of these books he featured a scientist who studied within the field that was the subject of that particular volume. He found that the majority of the scientists he had included had experienced an event during their formative years that had significantly influenced them.

In a series of books I wrote called ‘Life in Strange Places’ about a range of interesting biological things, like life on human skin was one of the themes; meiofauna, the things that live between sand grains. In each of those books I featured a scientist who studied that particular field, and out of 6 books, 5 of the 6 had a childhood experience. Gustaaf Hallegraeff, who was the guy for plankton, at the age of 6 his grandfather gave him a microscope and the first
thing he looked at was pond scum. That was a man who spent the rest of his life working on plankton. Jennifer Smith, the woman I focused on for meiofauna, her parents - I think at the age of 16 - gave her a scuba course and scuba gear. She’s been a marine biologist ever since. So there’s a lot of stories like that, and I think it’s basically because we are a coastal maritime nation. Most of us have mucked around on beaches, that kind of thing. [S1HB: 122]

Similarly, all of the marine educators interviewed in this study described significant childhood experiences that informed their views of the world. However, many also related incidents that occurred during adolescence and adulthood, indicating that there was a continuum of learning that took place throughout the individual’s life. These experiences occurred either with or without the involvement of people but always occurred in the natural environment. Although early experiences seemed to be significant with this group of marine educators, they all also had noteworthy adult experiences, suggestive of formative aesthetic understandings. Drawing on the theory of aesthetics, when we have an aesthetic experience we become open to – and actually seek out – further similar experiences, thereby creating a spiral learning effect; a Deweyan spiral.

The stories told by the marine educators about their aesthetic experiences have been explored according to the age of the individual (that is, child, adolescence or adult) when they experienced the incident. The results are shown in Appendix 3 and Figure 6.1.

In categorizing the data, I have identified a variety of elements that were highlighted as being significant or influential by the study participants. The analysis shows that strongest influences on the people interviewed were an outcome of experiences that occurred in nature. Many of these experiences involved other people or were instigated by others, explaining why the next most significant influence was deemed to be people. In order of decreasing perceived level of influence were: education, work and media.

There are a number of ongoing influences beyond childhood, which is indicative of the presence of a spiralling effect that can be understood through Deweyan theory. Furthermore, the interviewees often described a combination of numerous factors as being influential, many of which occurred simultaneously. This is evident in Rick’s narrative of how reading Rachael Carson’s marine oriented books opened up the world for him; of
growing up near the beach; of a high school science teacher who developed a marine biology high school program that Rick was involved in; and of inspirational university lecturers.

This combination of influential factors suggests that the marine educators are opening themselves (and even actively seeking) further opportunities to develop their understandings and their knowledge regarding the marine environment. In doing so, they evidence a sensitivity and responsiveness to conditions that allow their new understandings to be utilized. They are in effect being compelled to seek out other experiences, thereby fulfilling what Girod & Wong (2002) refer to as “spiralling” aesthetic experiences. As can be seen in the marine educators’ narratives, these experiences, both dramatic and compelling, unify into aesthetic understandings. These understandings underpin the way in which these individuals see and deal with the world, and inform their value system.

6.6 Chapter Summary
This chapter has looked at the marine educators’ stories through an aesthetic lens to make sense of their understandings and views of the world. By holding the same lens to the environmental education debates, explanations have been proposed that help us to comprehend and unify the knowledge-attitudes-action continuum from an aesthetic understanding perspective. Finally, some of the significant influences that have shaped the marine educators’ views of the world have been identified and examined.

The narratives related by the interviewees indicate that their experiences were transformative and compelling. The passion they exhibit for their work and the marine environment, is both inspiring and inspired, and is reflective of an aesthetic understanding. In looking at how the experiences that they described as shaping their understanding of the world, I have been able to examine how this understanding has informed their world views, their pedagogy, their sense of identity and their connections to the environment and to other people.
In Chapter 7, I further explore the interviewees’ stories to develop some insight into their understandings of the interaction of policy, community and education.
Chapter 7

**Charting a course through rocky waters:**

*marine educators as mediators*

‘...The sea is nature’s vast reserve. It was through the sea that the globe as it were began, and who knows if it will not end in the sea! Perfect peace abides there. The sea does not belong to despots. On its surface immoral rights can still be claimed, men can fight each other, devour each other, and carry out all the earth’s atrocities. But thirty feet below the surface their power ceases, their influence fades, their authority disappears, Ah, sir, live, live in the heart of the sea! Independence is possible only here! Here I recognize no master! Here I am free!’

(Jules Verne, 1869/1998)

**Introduction**

In the previous chapter, I explored the themes that emerged from the interviews with the marine educators and focused on the similarities and differences in the belief systems held by the respective participants. This allowed me to investigate and analyse the differences and similarities in the life experiences and personal narratives of the marine educators.

As a significant link between the public and government agencies, marine educators fulfil a range of essential functions, including information synthesis and distribution, providing educational support, leadership, educational experiences and expertise, and aligning (and driving) community and government agendas regarding the marine environment. This situates them as central figures in a complex and dynamic web which will be discussed further in this chapter.
By investigating the part played by the marine educators within this web, and the belief and value systems that inform their pedagogy, their epistemological understandings and their roles more generally, I address the study’s research questions posed in earlier chapters:

1. What drives the marine educators’ practice and where does this come from?
2. What is the relationship between the community of coastal/marine educators, government policy and practice?
3. What can we learn about marine education from the marine educators?

These questions require an exploration of the interaction between community, policy and education, and highlight the mediating and interactive role performed by the marine educators. Thus, in this chapter, I further explore the participants’ narratives in order to examine the wider role of marine educators, specifically in regards to understanding their interactions with, and the relationships between, these three core elements – policy, community, and education – within a coastal marine environmental context. From this I theorise that the marine educators play an important mediation role that is both enabled and constrained by the broader cultural-historic domain within which they work, (for example, government legislation and policy, community and societal expectations, funding). By drawing on the theoretical framework and the marine educators’ aesthetic understandings described in the previous chapter, I discuss the mediating roles performed by the marine educators and the pedagogical and wider values that inform these roles.

### 7.1 Marine educators, community, education and policy

The marine educators, and the educational programs they design and deliver, provide significant links between the public and government agencies. The central role that marine educators’ play between these three core elements: community, education and policy, can be depicted as in Figure 7.1.
This triangle provides the organising tool for discussing the mediating role of marine educators within this chapter. Consequently, the chapter comprises four sections. The first looks at the links between community – marine educators – education programs; the second looks at the policy – marine educators – community interactions; and the third looks at the education programs – marine educators – policy component. The fourth section discusses the key points that are drawn from this analysis.

As is represented in figure 7.1, members of the public and community groups generally receive education or information regarding the coastal marine environment through interpretive, educational programs. These programs are generally designed and delivered by marine educators who influence the community through the way they interpret policy to inform their educational programs.

Conversely, marine educators also influence government policies and strategies in a variety of ways, both direct and indirect. Direct pathways include: representing community groups on strategic planning committees; commenting on draft policies and legislation;
lobbying politicians or legislative parties through letters, petitions, and so on, and encouraging community involvement in environmental action (for example, Harry’s commitment to protect Point Nepean and the manner in which he activated the public to lobby the government to preserve this environment). Some of the marine educators have also adopted more indirect routes to influence policy that incorporate corridor conversations with politicians that sow seeds for change (for example, Geoff broaching the topic of marine parks during hallway conversations with politicians, thereby sowing the seeds for change in management approaches to the marine environment in Victoria), and/or producing publications in the form of books that are pro-environmental and educative.

By providing the public with relevant and learner appropriate pro-environmental education/information that is both inclusive and interpretive of government policy and strategy, marine educators take on a pivotal mediatory role. This complex interaction is evident in the triangle composed of community ↔ marine educators ↔ education programs embedded in Figure 7.1. Their role in the different relationships represented by the triangle is explored and analysed in the next section.

7.2 Community – Marine Educators – Education Programs

The mediatory role performed by the marine educators is both complex and value-laden. When designing educational or interpretive programs they work within the confines of the cultural and legislative boundaries that have been established by the government in power and the society that they inhabit. How the marine educators develop and deliver the programs is informed by their personal views and understandings of the world.

The marine educators’ narratives explored in the previous chapter reflected aesthetic commitments that extended to their pedagogical understandings. Their passion had a dual focus: a genuine appreciation for the marine environment, and a strong love of, and commitment to, their work as educators. This driving desire for learning and education, and for inducting others into this learning, can be understood through the theorizations of Dewey (1934) and Girod et al (2003) regarding aesthetics and aesthetic understandings (discussed in chapter 6).
The compelling, unifying and transformative nature of the marine educators experiences and knowledge informed the pedagogical approach they adopted in their educational programs and when dealing with the public. How the marine educators’ views about education are strongly aligned with their aesthetic understandings are explored in this section, and are drawn upon to gain insight into the complex mediatory role they play in the interaction between education and the community (see Figure 7.2). In addition, this theoretical framework is used to help make sense of some of the key ideas promoted in the environmental education literature.

In this section I build on the discussion in Chapter 6 by exploring the experience of engaging with the practice of teaching and with community.

7.2.1 Aesthetics and the primacy of experience

Several researchers have argued that the experience of teaching is inherently aesthetic (Darby, 2009; Dewey, 1934/1980; Eisner, 1979). Darby (2009), for example argues that this is evident in the unity that occurs in the interactions and the discourse that takes place between the students and teacher. Such practice of good teaching, we are told, entwines the intellectual and emotional characteristics of both learners and teachers. Rubin (1985) defines this as artistry of teaching that depicts “an extraordinary level of performance, bred out of personal commitment which elevates the state of art” (1985, p. 159). This quality of aesthetics can also be applied to the activity being taught and the pedagogical approach that is utilized in the process. If, for instance, science is solely depicted as analytical and
objective then the teaching discourse would entail students being required to
metaphorically take a step back, to become “critical observers of objects, events, and the
world” (Girod et al, 2003, p. 575). If science is portrayed in a different way, however, “- one
that draws us in, begs our curiosity, passion, and emotion” (Girod et al, 2003, p. 575), then
the quality of the learning (and teaching) experience can dramatically improve (Darby,

The narratives of the marine educators interviewed in this study indicate that they employ
pedagogy that is inclusive and experiential; pedagogy that encourages curiosity and
discovery, passion and emotion. This pedagogy stems from their personal values and
understandings of the world that have been informed by their own aesthetic experiences.
This can be seen in Susan’s explanation as to why her deep love of the marine
environment that was born out of her work with the cod fishermen (discussed in chapter 6)
derpins and drives her endeavours as an educational consultant. Her passion for the
marine environment and her enthusiasm and love of teaching is interwoven in her
formulation and development of environmental educational programs:

\[
\text{So, because I have this love of the marine environment I like to connect everything back as much as I can to the marine… this is theoretically a land-based ecosystem and yet I tend to, I guess, I like to connect things to the ocean. I like to pull things in that are oceans based; to broaden things out. I suppose that’s the other way that my personal bias comes through. [S1SS: 54]}
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This excerpt, and the other marine educators’ stories in Chapters 5 and 6, reflects their
underlying passion and drive to connect people to, and enthuse them about, the
environment; to share the aesthetic understandings and knowledge that had a
transformative and unifying effect on the educators. The marine educators’ key purposes
are to introduce people to the environment through similar pedagogical pathways that they,
themselves, had experienced: those of hands-on experiences, discovery, anticipation and
excitement. In doing so, experiences that inspire aesthetic understandings are created for
the individual learners to connect and come to understand the marine environment in the
same way the marine educators experience it.

Three key pedagogical elements could be identified in the marine educators’ narratives:
experiential or hands-on practices; place-based connections; and curiosity and exploration.
These elements provided the basis of their approaches to creating authentic aesthetic
learning experiences and they are intimately interlinked hence one does not exclude the other, although they can provide different foci for educational design and delivery. The benefits and use of each of these elements are discussed in the next sections.

**Experiential Learning**

The marine educators’ narratives indicated that inspiring and harnessing the learner’s curiosity and desire to discover was deemed critical to encouraging understanding and connections to the environment. Mark spoke of encouraging a sense of anticipation and excitement in the learner by providing educative experiences that enabled these aspects to be explored:

> It’s about trying to generate that sense of excitement about something that’s different. It’s a new world. It’s discovery. It’s, you know, ‘I don’t know about this sort of stuff and it’s pretty amazing’. And you know those sorts of things I think are fundamental tools that we all have to use in engaging the community as a whole. [S2MR: 271]

Mark’s comment reflects the dispositions of curiosity and discovery that are a staple part of the marine educator’s pedagogical approach when dealing with the community. They are also key elements of the marine educator’s past aesthetic experiences that motivated them to share that experience and knowledge with others. The educators’ inquisitiveness and exploration, combined with their personal aesthetic understandings, informs their strong belief in experiential learning.

It is this opportunity to explore, to discover and to talk about the things that are found and the discoveries that are made that can build a sense of anticipation and excitement and make an event dramatic or compelling. This became apparent when Harry spoke of his experiences with taking groups down to the coast. He described his efforts to get children involved and talking about what they find by providing them with a hands-on experience that required their cognitive and emotional immersion in the marine environment:

> So part of the thing is that business of a skilled educator sort of structuring the environment they work in so they encourage people, and as a high school teacher one of my biggest battles was getting kids to ask questions. Getting kids interested. Getting kids involved. And then working with the… you know, that’s the raw material that you work with…. So with a lot of survey work that I do on beaches and on rocky shores, one of my key objectives is not really red
Harry’s decision to enlist the learners’ assistance in conducting coastal surveys enabled them to safely explore the marine environment intellectually, physically and emotionally. By focusing on the experience rather than the results Harry creates a situation where the learning itself becomes something to be experienced. In this way, he provides the framework and the opportunity for authentic aesthetic learning experiences to occur.

Similarly, Mark expressed the importance of immersing learners in the marine environment by visiting coastal locales. He believed that, once there, it was important to provide an experience that offered the opportunity to explore these environments and to discover some of the organisms that exist in this ecosystem. For Mark, it was also about building a sense of anticipation and excitement by introducing people to experiences that they may not have had before in a manner that encourages and incites a transformative response. By acquainting learners with aspects of the marine environment that inspire a sense of of amazement and wonder, Mark aims to foster an emotional connection with the environment that would lead to further self-learning and discovery:

The marine environment, for most human beings, I would see as being an area they haven’t actually had a lot of experience in the past. So very much in developing interpretation programs and education programs, it’s about the ‘wow’ factor. It’s about trying to provide opportunities for people to experience these environments, whether it’s a virtual sense or a real sense, that gives them that sort of ‘wow’ factor, that stimulates them to want to go and learn more… that provides teasers to entice them to discover more for themselves. [S2MR: 269]

This concept of providing experiential opportunities that have a ‘wow’ factor and invite aesthetic understandings is reflected in the six characteristics proposed by Uhrmacher (2009). Drawing on Dewey’s work on aesthetics and experience, Uhrmacher (2009) theorised that in order to ensure learners had an aesthetic experience the educator would need to include at least three of six characteristics (or themes) as part of their educative work. These six themes included:

- connections (that is, “intrinsic connection of the self with the world through reciprocity of undergoing and doing” (Dewey, 1934, p. 247));
- active engagement (that is, there must be active engagement with the subject matter for a worthwhile experience to occur);
• sensory experience (that is, an experience must require the use of an individual’s senses);
• perceptivity (that is, a learner must create their own experience through seeing and looking deeply to determine the nuances of the object under regard thereby expanding their perception);
• risk taking (that is, the experience must involve a venture into the unknown, of exploration); and
• imagination (that is, the ability to enlarge or concentrate the immediate experience for understanding to occur).

Of these, Uhrmacher claimed that making connections, active engagement, and sensory experiences were necessary for an aesthetic experience to occur. He theorised that although the characteristics of perceptivity, risk taking and imagination were vital, “(w)ether they must be part of every aesthetic experience is open to debate” (2009, p. 623).

All six of these characteristics were reflected in the various stories told by the marine educators about how they interacted with the community, their goals and objectives in doing so, and in their pedagogical approaches. This was manifest in the methods they used to help people understand and make connections with the world around them. An example of this is the manner in which Susan designed the educational programs and curricula she delivered.

During my conversations with Susan she related how she utilised a variety of sensory awakening activities to capture attention, inspire interest and ensure the learning was authentic and relevant to the learner. She spoke of how she aimed to engage a wider variety of learners by using a hands-on experiential learning approach that incorporated observation, exploration, experimentation and action learning techniques.

I believe in using hands-on, outdoor techniques as much as possible. Starting from where the learners are – so getting a sense through some games and introductions as to their prior knowledge and experiences with an issue or environment, and then through experiential learning activities moving into sensory discovery, appreciation, deeper understanding, reflection and action. [S2SS: 15]
It is evident from this narrative excerpt that Susan’s educational programs incorporate many of Uhrmacher’s theorised characteristics for creating an aesthetic experience. By encouraging discovery through use of the senses, an appreciation and understanding of the object, and by providing the opportunity to reflect and act, Susan captured the learner’s interest, connecting and engaging them in interacting with the object of focus.

This need to catch the learner’s attention and engage them in the learning, was described by the marine educators as a need to “hook” the learner. By exposing learners to the coastal marine environment through visitation and encouraging them to set the learning experience through personal exploration and discovery, the marine educators created the opportunity for an aesthetic experience to occur. By inciting active engagement with the environment and its inhabitants, encouraging risk taking through investigating their surrounds using their senses, encouraging the use of reflection and imagination, the educators provided the impetus for a compelling and dramatic experience.

This was also evident in Geoff’s story of designing programs that required taking people into the natural world and enabling them to discover the environment and its inhabitants for themselves. When Geoff spoke of the programs he has run and currently runs, he talked about how he ‘hooks’ people in by showing them the unusual or the weird. He recognised that people were attracted to the slightly scary or frightening – as long as it was in a safe environment they would find it fascinating, and that this was an unchanging (and unchangeable) element of human nature:

*Kids have a sort of sense of weirdness. They love the weird - the weird sort of organisms and animals out there. They are really fascinated by something that’s completely weird. And so I think that is still the best hook. It was the best hook 20 or 30 years ago, it’s still the best hook in many ways. ...Whenever I’ve taken kids down to the Rocky Shore and give them a little bit of a warning about Blue Ringed Octopuses – the Blue Ringed Octopus is the one they really want to see. That’s what they really want to see – they don’t want to be bitten by it – but they really, really like to see something that dangerous. So they have that sense... I think in a way those things are unchangeable, people are going to be... still like the weird and unusual, the slightly scary or frightening. They want to do it in a very safe environment, but they nevertheless find that fascinating [S2GW: 127].*

This excerpt from Geoff’s narrative mirrors the pedagogical understanding that Patrick espoused regarding creating moments or learning experiences by focusing on unusual
animals to build a sense of discovery, anticipation and excitement (discussed in Chapter 6). By recognising and addressing this aspect of human nature – to be fascinated by those things that are outside our everyday experiences – both Geoff and Patrick create a compelling and actively engaging learning event that connects the individual with the unusual organisms. In doing so, it provides a sensory experience that awakens perceptivity and a degree of risk taking through exploration and discovery.

**Place-based Connections**

Helping people to make connections with the surrounding world (whether it is unusual animals or the physical environment) is a fundamental attribute of the educators’ stories. As discussed in chapter 6, the marine educators’ strong personal sense of rightfully belonging in the natural world informs their self-identity. In addition, this self-acknowledgement extends to, and underpins, their pedagogical understandings. Accordingly, they share a strong desire to impart their knowledge and experiences to assist others to form connections with the natural environment in an attempt to make meaning of the world around them. The experience of exploring an environment in a safe and positive manner invites understanding, through which an appreciation and an emotional connection to the surrounding environs can develop. By providing the learner with an experiential learning opportunity that is fun, addresses the desire to learn and satisfies curiosity, the marine educators’ assist the individual in transforming the way they see some aspect of their world and to value this new way of seeing.

This desire to assist others to form connections and to develop a sense of place and belonging was manifested in Rick’s narrative. Rick emphasised the importance of educational programs that allowed opportunities to learn to respect nature and to make an emotional commitment to the world. He explained his belief that people want to know more about the area they inhabit, particularly parents who saw a need to share with and instil in their children a connection with their local environment, thereby establishing a sense of belonging:

…what I see here is that parents would really like their kids to know about their place. This is home…There is an increasing… it would be some kind of a longing to connect to places. There… in this terribly transient society here, no one stays in any one place long enough to connect. I think at some point there has to be this other side thing, where we have to come to belong [S1RK: 154].
This comment reflects Rick’s inherent understanding that it is a fundamental characteristic of humanity to seek connections. It also displays his belief in empowering the learners' perception and understanding of the environment in order to assist the individual in actively engaging and connecting with their surrounds. Through this understanding and connection, a situation is created that encourages and enables people to develop their own sense of place and belonging.

This sense of belonging and connecting to the coastal marine environment was central to all of the marine educators’ narratives, as was the awareness that these connections were tenuous or even lacking amongst the majority of the general populace. Mark, for instance, perceived that recreational activities themselves (for example, snorkelling or surfing) can lead to a greater appreciation of the environment, which in turn, (and with reflection on behalf of the learner) would lead to a desire to look after these environments for the inherent recreational opportunities they provide. In this way, experience and knowledge of an area would inspire an appreciation and deep emotional connection to the environment that potentially could lead to pro-environmental action (including advocacy) for the preservation and conservation of the setting. This is reflective of some environmental educators’ belief that knowledge acts as a catalyst for pro-environmental attitudinal change, and/or inspires a desire to act for the environment.

Developing a context where people can form an aesthetic understanding of the natural environment, (and thereby enabling opportunities for them to cultivate a sense of place and of rightfully belonging), requires a learning experience that encourages connection and understanding of marine ecosystems. Such a connection is often inspired by direct and hands-on experiences that allow exploration and discovery. However, when the chosen setting is underwater, creating learning opportunities to assist individuals understand and connect with the aquatic natural world raises obstacles. This is particularly true since, as Mark points out, “for most of us land lubbers we tend to sort of get this sort of like one dimensional view of the sea as being flat and blue stuff and that’s pretty well it” [S2MR: 58].

Wearing the mantle of ocean educator, Harry stressed the importance of trying to give learners an insight into life below the surface of the ocean. To do this he tried to be as
interactive as he was able by taking pre-painted Styrofoam cups on a deep-sea expedition and later returning them to their primary school owners considerably reduced in size. Coupled with screening the videos he had taken whilst on these underwater excursions, he was able to ignite a sense of wonder and discovery within the children.

But you go into the open ocean, most of what you see has never been seen before by scientists. And the whole idea that there is this complete set of life that’s gelatiness and transparent that lives in the mid water which the only way we can look at it is with an ROV, you know, a robot with a TV camera driven by a human from the surface. Or one of these submersibles where the deepest diving one can only go to a kilometre with the Perspex bubble so it can actually sit there and see. And using that then to start to make the public aware that with all this new ocean… like Australia’s ocean territory is 1 ¼ times the size of its terrestrial territory – and we’ve never seen it. [S1HB: 220]

In providing an insight into the sub-marine environment, Harry opened a window into the oceanic environment that allowed discovery and learning generally unavailable to the students. Through this learning, Harry enabled an appreciation of the underwater realms to be cultivated and a sense of ‘knowing’ this area and, through this appreciation and knowing, a sense of connection is encouraged.

**Curiosity and Exploration**

The marine educators shaped their education programs based on how they saw children (and adults) interacting with the environment. To a certain extent this was reflective of what they themselves found interesting as a child, while also acknowledging the differences in generational lifestyles that exist. Although the marine educators were fairly evenly divided as to whether children of today positively responded to the same things that might have interested them as children, they shared a critical construct that some attributes (such as the desire to discover and explore) were fundamental to the human psyche.

During my conversations with the marine educators, they often made references to how children’s experiences of nature have changed and cited their limited or controlled access to the environment as a causative factor. This was evident in Calvin’s description of his childhood experiences exploring his local environs and of the length and breadth of this

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29 The cups were placed in a net on the outside of the submersible so that they were subject to extreme underwater pressure thereby causing a size reduction.
play adventure, highlighting the differences he perceived that existed between his
generation and children of today:

*What I’ve noticed is these kids aren’t allowed to get out and explore the way I
was able to. My generation… You’d say “bye, Mum”, leave in the morning and
come home for supper. I mean if our kids did that today I’d think there would be
a search party out for them in 2 hours and these guys don’t get to explore very
far. Their explorations are off TV or off the internet and most of that is game
playing. It’s not anything to do with the environment.* [S1CP: 156]

Nevertheless, a belief that curiosity and the need to connect were still fundamental drivers
for environmental education underpinned the pedagogical understandings of all the marine
educators interviewed. These more emotionally oriented or affective aspects were
described as unvarying, particularly that of an individual’s need to understand and make
connections (affective and cognitive) with the surrounding world. Patrick, for instance,
argued that the passion and enthusiasm people felt and expressed for the environment
had not changed over time, nor had the need to share this excitement and love with others.
Reflecting on the values he developed through his interactions with passionate people
(both as a child and as an adult), he spoke of his confidence that similar exchanges would
be equally influential to today’s learners as they were for him in the past.

The marine educators’ narratives also reflected a strong underlying belief that the human
attribute of curiosity was a fundamental and unchangeable driver for environmental
education. ‘Curiosity’ was a critical construct for all these educators, underpinning their
educational program design as well as their use of a diverse range of pedagogical
techniques to engage with the learner. According to Harry, this innate sense of curiosity
that drives most people to discover ‘what’s there’, comes into play around the sea:

*I believe that we just have this natural affinity to the sea and the creatures…
particularly the creatures in the sea… and a natural curiosity. And that’s been
my bread and butter for a very long time.* [S1HB: 393]

Mark talked about the similarities that he saw existing in members of differing generations.
He held the belief that the senses of wonder and inquisitiveness were still as obvious in
children today as it was in the young (and not so young) of past generations, asserting that
people never actually lose these traits, as we all search to make meaning of, and connect
with, the world around us.
I think regardless of your chronological age, we’re all still children on the inside anyway, even though we might not look like it on the outside. And that one of those wonderful things about children is their inquisitiveness and their natural curiosity about the things they don’t know about or don’t understand, the need to try and provide… the need to understand or find some sort of meaning in what people can see around them. [S2MR: 268]

7.2.2 Constructing Virtual Environments
A common theme in the marine educators’ discussion of the community-education interaction concerned the implications of increasing access to computer based technologies.

Recognising that children (and adults to a lesser extent) are more sophisticated technologically than they were in the past induced the educators to suggest that people were more connected to the “virtual world” than the “real world” nowadays. The educators would use the “virtual world” through ICT (Information and Communications Technologies) to capture the technophile learners’ attention and to enhance their experience of the “real world”. This reflected the marine educators’ perception that the need to understand and to connect, especially to other living things, was still applicable to all age groups, regardless of the technological sophistication of the individual. Susan demonstrated this perception when she commented that involving or “hooking” children into the real world was critical as “too much of their learning was virtual and removed from their control”. This prevalent use of on-line or virtual learning was perceived to be an inhibitor to the formation of an aesthetic or emotional connection to the environment. As Rick explained:

We have Louis Agassiz saying “study nature not books”. We could easily amend that to the modern world and say “study nature not the internet”. In its virtualness it loses some of the power. And I don’t know whether you get the same sense of urgency of what needs to be done… I think being out there and seeing these creatures… is that there is an emotional side of all of this… that, you know, you get uncomfortable with that kind of emotion. [S1RK: 145-6]

The formation of such a connection between the virtual and real worlds is significantly important in aiding the learner to understand and appreciate their surrounding environment (Girod et al, 2003; Uhrmacher, 2009).

Although the emotional connection that develops as a result of value-laden and first-hand direct experience has the potential to inspire pro-environmental behaviour within the
individual learner, it inherently carries with it a significant cost to the same environment to which the connection is being made. As Patrick perceptively pointed out, the environment cannot sustain the large and increasing population volumes that would be needed to undergo these transformative experiences first-hand. This is particularly relevant given the predominant economic setting and available educational resources currently available. Patrick argued that the enormous environmental damage that would be sustained by ensuring every individual had a direct natural experience was, in itself, a justifiable reason for utilizing a combination of the virtual world with the natural environment:

…in an economic setting that is going to become more and more prevalent, and the population volumes that we are dealing with, and the resources that are available in the education system, we’ve got to find some ways to do a lot about value-adding our key work outside the environment. And the environment has become critical with the experience, I mean as a virtual experience, rather than the setting for the experience. Not because it shouldn’t be, but I’m very sceptical as to whether it can afford to be because of the damage it’s going to sustain. [S1PO'C: 252]

Although the evolution of technology and its adoption into mainstream culture was seen as inhibiting at one level, many of the marine educators also saw it as providing an opportunity to explore and discover environments that would otherwise be inaccessible. Familiarising people with these underwater environments encourages understanding and a sense of ownership that echoes the elements underpinning aesthetic understanding. The use of virtual technologies enables learners to explore, experience and appreciate sub-aquatic environments that would otherwise have been off-limits to terrestrial based learners. In order to enable such a significant and potentially aesthetic experience to occur, the marine educators included an increasingly larger technological component into their educational program design. Patrick, for example, spoke about the use of tagging technology and satellite telemetry on ocean pelagics as a way of making the ocean highways clear to land-based observers. He saw this as enabling insight and understanding into the habitat and lives of the aquatic inhabitants, which he believed would encourage a sense of ownership and connection to that specific marine area or species, as people tend to respond to things that are simple and familiar.

Susan described using remote controlled bottom crawling robots with built-in cameras that provided her students with a view of the aquatic world that instigated, and motivated, them to want to learn more. In much the same way, Harry incorporated computerised AUVs
(Automated Underwater Vehicles) to enable his students to see what was happening on
the ocean floor through the simple act of logging on to a classroom computer.

When telling his story, Harry spoke of the need to identify and adopt technologies that
people were familiar with (and used on a daily basis) to help them connect to the natural
world. With this in mind, Harry developed a website that enabled beachcombers to use
their mobile phones to photograph unfamiliar coastal organisms and text them to him for
identification. By utilising such everyday technologies, Harry was able to indirectly facilitate
the informal learners' exploration and discovery of the coastal environment.

I think picking up with the sort of technologies that people use… when we were
young if we wanted to find something out we’d look at a poster or we’d go to a
book. The modern world of technology is very instant. That if somebody finds
something on a beach, they’ve got their phone with them… ‘click’… phone…
done. [S1HB: 357]

By enabling people to (almost instantly) learn something about the organism they have
found, a situation is created whereby the learner is able to explore, identify and come to
understand and appreciate the organism and its habitat. This, in turn, encourages the
learner to develop an understanding and connection to the environment in which they are
located, thereby creating the foundations for an aesthetic experience that might not have
happened, to occur had the learner not had immediate access to a knowledgeable source.
The marine educator (albeit virtual at this point in time) promotes active engagement and
sensory experiences that are essential for continuing aesthetic learning to occur. In this
way, the marine educator (virtually or directly) facilitates (or catalyses) an aesthetic
learning experience. By identifying and providing information about the subject matter, the
educator empowers the learner to further explore the organism until they understand the
world in which it operates and interacts. In doing so, the educator acts as a catalyst for
continual aesthetic learning – albeit via virtual means.

A basic premise that underpins and informs using technology as a pedagogical tool is that
the person has already had previous first-hand experience with the coastal environment.
Calvin expressed the concern that some children (and adults) may not even get that far.
He was aware that they are exploring the web environment but not actually getting into the
natural environment at all, and therefore not making a connection to the natural world that
they would carry into adulthood. As these children are the decision makers of the future,
Calvin was concerned that this lack of connection and understanding of the natural world was an issue because, without this emotional or aesthetic connection, they may not take their environmental stewardship role to heart:

These guys don’t get out enough into the environment so that’s my big worry, is that this whole generation of kids we’ve got now aren’t exploring their natural environment at all. They’re exploring their web environment - the game playing web environment. That’s more worrisome than some of the destruction of the forest that I see… If these guys, the future generation, doesn’t have any connection to the natural environment they’re just going to log it, burn it, pave it… [S1CP: 157]

Although the other marine educators might have shared this concern, some also saw the current young generation as being able to identify, understand and appreciate the connections between sustainability issues on a global scale and personal actions or behaviour. Rick, for example, explained that today’s children were more aware of and “tuned in” to the links between individual behaviour and their global environmental consequences, more so than he was as a child. He indicated that this attitudinal and behavioural change stems from a range of factors including the prevalent cultural or societal questioning of humanity’s action in (and on) the world, and the easily accessible array of educative resources available to encourage understanding of global sustainability issues:

I think most kids are still pretty open to the magic of seeing stuff. The kids are much more tuned now also to the connection about what should you do, and much more so than I was as a kid. That these are big moral questions we’re asking now about our actions in the world and how they will affect places like the oceans, the atmosphere, climate change. Huge thing to imagine that my driving my little goofy car could in fact be part of this human engineering part that’s changed the very nature of the air around us. When I was a kid I couldn’t even imagine that happening. [S1RK: 142]

This quote from Rick reflects his personal understanding of the world and the aesthetic framing that informs it. It also provides insight into the major shift in attitude and the way he views the world that Rick has experienced over time as a consequence of his aesthetic experiences. By suggesting that today’s children are “tuned in” to seeing the connections between personal action and global consequence, Rick offers hope that this generation is open to developing a similar aesthetic understanding of the world. It is this understanding that has the potential to underpin and inform their future knowledge, attitudes and actions towards the environment.
7.2.3 Knowledge, Attitudes and Behaviour

Ballantyne and Packer (2005) argue that informal educational environments have a significant role to play in enabling learners to engage with, and in, the environment. The informal learning environments that the marine educators predominantly teach within, attest to this thesis; that is, these places allow the educator to show learners evidence, and the ramifications of, environmental mismanagement. This, in turn, allows the learners “to explore and construct their environmental knowledge, skills, attitudes, beliefs and behaviours in personally relevant and meaningful ways” (Ballantyne & Packer, 2005, p. 289). By engaging the community through personal (and personalised) learning, and encouraging individual involvement and action in marine coastal issues and concerns, (particularly, where feasible, those local to the specific learner), the marine educators perform a critical mediatory role.

Some traditional environmental education approaches were underpinned by the assumption that in providing people with information or knowledge about an environmental issue, changes in attitudes to the environment would result, eventually translating into pro-environmental behavioural change (Hines et al, 1986/87; Irvine et al, 2000; Ramsey & Rickson, 1976). The theory of a linear relationship between raised environmental awareness eventually culminating in modified behaviour, (through linking environmental knowledge to attitudes and attitudes to behaviour, as discussed in Chapter 2), was proven to fall short when put into practice (Clover, 2002; Kollmuss & Agyeman, 2002; Kurtycz, 2005). Although this assumed linear relationship was shown to overlook a myriad of other psycho-social variables that influence behavioural change (Rodrigues, 2007), many environmental organisations designed their education and communication programs based on this assumption (Kollmuss & Agyeman, 2002).

Evidence of this KAB (Knowledge, Attitude, Behaviour) model is apparent in some of the stories told by the marine educators. Geoff, for instance, described how his educative approach was that of “a classic academic” in that he would ensure there was a build-up of knowledge and understanding before communicating further messages. Although he perceived that a substantial accumulation of knowledge regarding the marine environment (including pedagogical epistemology) had occurred over the past 20 to 25 years, he
described this knowledge base as historically tending to focus more on content knowledge rather than exploring values or attitudinal messages:

*That knowledge base has tended to be sort of flora and fauna orientated so it hasn’t had that many sort of valued… value or attitude messages in it, so it has tended to concentrate more on base level knowledge. In terms of translating that into attitudes - and positive attitudes - I think that’s probably the evolutionary stage it’s at, at the moment. I think probably amongst youngsters, because the emphasis in the primary end has been so strong, they probably have a sense of looking after rocky shores, looking after beaches, in that general sense. I think it probably just reflects that evolutionary development of knowledge first, then attitudes, then behavioural change.*[S1GW: 17-18]

According to Harry, this historical focus on knowledge (as opposed to action or behaviour) had widespread ramifications, insofar as it dictated where funding, measurement capabilities and perceived needs were largely directed:

*…the majority of my work is, at first glance, at the level of knowledge and attitudes. Particularly at knowledge in terms of the books that I do, the websites and one of the things that I am really struggling with is… particularly because it relates to funding, but also it’s just perhaps a curious mind.. is how you measure…. In the time I’ve been involved in marine education we started off supposedly mainly focusing on knowledge and attitudes, as I think environmental education did. And we were dragged kicking and screaming, some of us – me – into the area of action.* [S1HB: 191-2]

As is illustrated by this excerpt, some marine educators, with their backgrounds in science, have found this transition from ‘message transmission’ or ‘meaning-taking’ to ‘meaning-making’ (Ballantyne and Packer, 2005; Silverman, 1999; Uzzell, 1998) a personal challenge. This supports the conventional understanding that marine (and environmental) education stem from a science education paradigm, one that is aligned with a cognitive, rational framework. Such a model fosters an approach based on a cognitive, rational perspective that values conceptual knowledge development through “inquiry and the application of science process skills supported by the acquisition of the language of science” (Girod et al, 2010, p. 802).

Researchers differ in their views as to how important knowledge is to predicting pro-environmental behaviour (Flam, 2006). Some researchers hold that the most influential environmental behaviour effects come from personal-philosophical values (Grob, 1995) rather than acquired knowledge. Others, however, report that “those individuals with greater knowledge of environmental issues and/or knowledge of how to take action on
those issues were more likely to have reported engaging in responsible environmental behaviours than were those who did not possess this knowledge” (Hines et al, 196/87, p. 2). Although this debate continues, it is generally acknowledged that there remains “uncertainty involved in the prediction of environmental behaviour” (Hines et al, 1986/87, p. 8).

Although the relationship between knowledge, attitudes and action or behaviour is not uniformly conceived of as linear, the idea that knowledge is critical to achieving changes in attitude and behaviour is still widely accepted. Many members of the public already possess an extensive working knowledge of marine organisms and habitats (generally, as a result of institutional visitations30); however, as Geoff explained, this did not necessarily translate to learner-centred activism. Geoff linked the translation or evolution of this knowledge base into effective pro-environmental behaviour to the inspiration and development of an understanding of (and commitment to) ongoing sustainable use practices and, thereby, the facilitation of future generations of good environmental stewards:

So I think the challenge is then… to start to keep them interested as they get older and have a sort of false sense of sophistication and coolness, but then also to get that link going between knowledge and then attitude and then behaviour. So I suppose that in a way again its evolution. It’s the next stage up. Okay. They have a good sense of what’s there. How you going to translate that into a sort of sustainable use sense? A good citizen/ stewardship sense? Which is much harder.[S1HB: 135-6]

This is mirrored in Calvin’s conviction that any action taken is potentially harmful to the environment if the actor does not possess the knowledge or understanding of the prospective impact of their actions. This view becomes particularly relevant as the sense or need to be able to ‘do something’ becomes increasingly strong for a large proportion of the population both here in Australia and in Canada. According to Susan and Calvin many people have expressed a desire for further knowledge and for information about what they could do to help the environment:

…many students and adults that I have interviewed for evaluation work speak of wanting to be able to DO something to help the environment, but not knowing what they could do – not having an outlet or avenue, or the skills/ opportunities

30 These include virtual and simulation institutions such as the Melbourne Aquarium or the Vancouver Aquarium prior to visiting a natural environment.
to work with. This is a huge area I think that as educators we should make use of. [S2SS: 36]

The marine educators’ narratives thus indicated that they saw very clear relationships between knowledge, attitudes and action in/within marine education. This was not, however, seen as a linear relationship, as has commonly underpinned marine and environmental education programs (that is, an awareness – appreciation – understanding – action process or KAB) discussed earlier, but one in which the knowledge, attitude and action are linked in a more intimate way than implied by the linear model. The educators’ views can be better captured by the aesthetic perspective described earlier in Chapter 6. For example, Mark, although acknowledging that there was an obvious link between converting knowledge and attitudes into action and that it was not possible to undertake effective action without an understanding of the environment, theorised that it does not necessarily follow that one must come before the other.

Action essentially is about behaviour and behaviour modification. It’s quite clear that knowledge - having to sit and worry about issues – does not actually result in people actually changing their behaviours. There’s far greater evidence to suggest that being involved in programs… whichever action you claim to have made, makes you result in much longer term adoption of appropriate behaviours. [S2MR: 83]

As Mark’s comments reflect, the role of action in environmental education practice is not necessarily an end point in itself, rather it is a step into further understanding and behavioural change on behalf of the individual learner. Acceptance that the role of action then becomes a pathway into further understandings, signals a move from a linear (that is, Knowledge-Attitude-Behaviour) model to a more integrated aesthetic understanding paradigm. A Deweyan spiral framework that integrates the idea of transformation is such a paradigm. Such an idea is interpreted in Figure 7.3, which shows the interlinking of knowledge, attitude and behaviour as pivoting around, and therefore informed by, a framework of aesthetic understandings.
The theory of aesthetics specifically accounts for a unification of personal knowledge and action (Girod & Wong, 2002). By taking action individuals unify their personal knowledge with their personal behaviour. In developing an understanding of and a connection with the environment, a sense of 'ownership' or 'stewardship' develops creating a transformation in the way the individual sees (and responds to) the world around them. Relevant environmental education literature has shown that these changes in attitude and behaviour stem from a series of factors that arouse the participant’s emotions, challenge their belief system and enhance their environmental conceptions (Ballantyne and Packer, 2005). As with all aesthetic understandings, it has also been proposed that “these processes are intimately interconnected and cannot be neatly separated” (Ballantyne and Packer, 2005, p. 287).
Ballantyne and Packer proposed a theoretical framework for understanding environmental learning whereby:

to accomplish lasting, meaningful and effective change in environmental conceptions, it is necessary to employ a range of strategies that address the learner’s knowledge, attitudes, values and behavioural orientations as part of an integrated approach (2005, p. 287).

Echoing this, Mark explained that there were a range of parameters that influence the decisions learners make with regards to their personal behaviour – and not all of them are linked to knowledge. As he saw it:

… knowledge is part of a number of different aspects that lead people to make choices in terms of their personal behaviours. The knowledge is very much a critical part of that, but there are a whole lot of other things that will lead to that as well… There’s a much more complex set of parameters that actually influence what people are going to do in the long term. [S2MR: 84-5]

Reflecting this view, the other educators’ stories provided different perspectives on how these complex parameters should be included within educational programs. Most described an experiential initial approach, while others spoke of a firm knowledge base being critical to ongoing learning and positive activism. Susan, for instance, discussed how she chose to start her educational programs with hands-on experiences that involved exploration and outdoor techniques, as much as possible. She described how hands-on experiential learning made up a large part of her educational practice because it was “critical to sparking interest, ensuring that learning is relevant and real to the learner, and engaging a wider variety of learners” [S1SS: 11]. She proceeded to describe how she would use experiential learning activities to move from identifying the learner’s prior knowledge and experiences into sensory discovery, appreciation, deeper understanding, reflection and action. Her firmly held belief that action learning skills were important to develop and practice before learners undertook projects was reflected in her choice to build these attributes into any teaching unit that she developed31.

Drawing on Dewey’s theory of aesthetics, we are made aware that not every experience incites change or transformation, and not all are authentically or equally educative. As discussed in the previous chapter, some experiences are amusing or entertaining, but fail

31 This was described in depth in a curriculum guide she wrote for students, teachers and non-formal educators doing action projects, called “Leap into Action: Simple Steps to Environmental Action” (Staniforth, 2003).
to develop beyond an inchoate state. Such encounters are unsuccessful at integrating the experience with the inner emotional world and mind of the individual learner.

Conversely, a unique experience that enabled continuous unification of the outer world and the inner emotional and cognitive world of the learner would be an aesthetic experience. In his research study into learning behaviour in a formal educational setting, Intrator (2003) referred to such unifying and transformative incidents as an ‘episode of inspired learning’ (p. 155) and described those students that did have such an aesthetic experience as being ‘focused and emotionally involved in what was happening’. However, he also argued that not all experiences lend themselves to episodes of inspired learning and, if they did, that not all of the learners would respond to the event in the same way (that is, not all would experience an aesthetic learning occurrence).

Compelling events may consistently elude both teacher and learner resulting in an ‘ordinary’ educative experience wherein the value of the event is lost (Girod & Wong, 2002). By providing learning experiences where connections are made, thereby forging a link between the internal emotional world of the learner and the external world, a state is created wherein meaningful and enduring actions can occur (Intrator, 2003, p. 154). This culminates in a state of being where learning becomes something to be experienced and experiences become acts of thinking and meaning (Girod & Wong, 2002).

Intrator (2003) theorized that it is the journey of learning, not necessarily the endpoint, that enables focused emotionally stimulated and conscious or ‘awake’ minds in learners. This is consistent with the marine educators’ narratives when reference is made to the importance of encouraging learner characteristics of inquisitiveness and discovery by immersing the individual in the natural environment. Mark, for example, spoke of the importance of making connections with the environment for people to value these areas and that these connections generally came about through immersing the learner in the environment:

*I mean you’ve really got to try and start with the basics. People just don’t know about some of this so you have to at least provide that first initial connection for them to recognise they are values that are worthwhile protecting and looking after… That’s a starting point but certainly in terms of actually changing long term behaviours, it’s about trying to engage people in the process rather than simply providing information. [S2MR: 97-100]*
The marine educators described various approaches to encouraging environmental activism by making action a key feature of implemented marine education programs. Geoff, for instance, explained that the university education programs he designed were underpinned by the theory of integrated coastal zone management and, therefore, by an environmental sustainable development (ESD) context. In doing so he provides an educative opportunity for his learners to translate or evolve their knowledge into action (as discussed above). Geoff described how he adopted a similar pedagogy when working with marine professionals and coastal coordinators to incorporate and build on their professional knowledge, and ensuring that action became (and remained) an intrinsic element of marine education.

In terms of the marine and coastal community network I suppose that’s where I take the professional knowledge and put it in as much as possible to work coastal… to the coordinators who will run with it from there. [S2GW: 23]

Mark provided educative and interpretive opportunities for community groups with a connection to a particular coastal area by taking them out into the adjacent water. In doing so, he enabled the individuals to further explore, discover and develop a more intimate understanding of the locale. This approach extended the group’s understanding and appreciation of the values of their local marine sanctuary thereby empowering the individuals to further connect emotionally and cognitively to their environment, (that is, to enable the individual’s continual exploration of aesthetic experiences and understandings).

So the two key areas for activism for the marine, as distinct from the coastal, has been very much on developing education and interpretation opportunities. And the other one has been about developing opportunities to be involved in collecting information, monitoring programs like reef watch programs, being part of the Parks Victoria Sea Search Program, which is very much a scientific approach to collecting data. These are all significant ways I think of actually providing action opportunities for people to get personally involved in doing something about those environments. [S2MR: 123-4]

This quote reflects Mark’s aesthetic commitments and provides an insight into the extent to which these values inform his pedagogical understandings. By encouraging people to explore the marine environment, inspiring them to act for its preservation and conservation, and empowering them to pass this knowledge and understanding on to others, Mark is enacting Dewey’s framing of aesthetics and aesthetic understandings. An exploration of the marine educators’ narratives shows that this aesthetic commitment, the driving desire
for education and learning and the longing to induct others into this leaning is shared across the group.

### 7.2.4 Section summary

In section 7.2, the pedagogical approaches the marine educators adopted in their educational program design and in their interactions with the public have been discussed and shown to be informed by their own experiences and understandings of the world. This strong alliance between the marine educators’ views about education and their aesthetic understandings has provided insight into the complex role the marine educators play as mediators between education and the community. Aesthetic understanding provides a powerful way of re-conceptualising the link between knowledge, attitudes and actions or behaviours, centred on the notion of transformation. Here, we see the link between knowledge, attitudes and behaviours as continuous rather than separate and linearly connected. Thus, I argue that the aesthetic framework provides a theoretical account to what has been an ongoing problem in conceptualising the link between knowledge, attitudes and behaviour.

The degree to which the mediatory role they play extends to the interface between the community and government policy is discussed in the next section. How this role is informed and underpinned by their personal experiences and aesthetic understandings is also investigated.

### 7.3 Policy – Marine Educators – Community

For many decades, both international and national agencies have formulated theories and principles for guiding sustainable development and management of the Earth’s oceans, seas, estuaries and coastal regions (See Chapter 4 for discussion on governance documents pertinent to coastal and marine environments in Victoria, Australia and British Columbia, Canada). It has long been recognised that this complex process of oceans governance is reliant on a number of interacting (and sometimes competing) factors and, accordingly, requires a multidisciplinary approach in its implementation; one that recognises “the interconnectedness of the environment and our decisions” (Anderson, 2005, p. 191). As Rothwell and VanderZwaag (2006) point out, neither the task of defining the term ‘oceans governance’ nor its implementation is an easy one:
Against the background of the development of the legal framework for managing the oceans, parallel developments have been taking place in the concept of ocean governance around the world. However, the concept is not easy to pin down because of multiple dimensions. The term captures the ongoing evolution towards more “participatory decision making” involving not just government agencies and departments but a broader range of participants including the private sector, scientists, community groups, non-governmental organisations (NGOs), academics, First Nations and others. (Rothwell & VanderZwaag, 2006, p. 4)

Effective management of ocean and marine environments requires acceptance of responsibility, participatory decision-making and action on behalf of all the stakeholders “with regard to spatial-temporal resource use in the pursuit of many sanctioned economic, social, political, and environmental objectives” (Sutherland and Nichols, 2006, p. 6). The participation and cooperation of all members of society – including scientists, engineers, policy makers, community activists and the general public – needs to be gained, the needs and concerns of these stakeholders addressed and equal opportunity to contribute to policies and strategies accorded to them.

This mediatory role is undertaken by marine educators and in doing so they act as both advocates and activists for the marine environment.

Although, the role of advocacy in the education literature is surrounded by controversy (Russell, Bell and Fawcett, 2000; Russell and Hodson, 2002) many of these criticisms relate particularly to classroom settings. Some argue that thinly veiled indoctrination can underpin approaches to challenging the social status quo (Jickling & Spork, 1998), while others maintain that advocacy places the onus for change on the individual potentially leading to feelings of disempowerment or disillusionment if the person is unable to take action (Russell, Bell & Fawcett, 2000; Tan, 2009). Thus practitioners of environmental education need to bring eco-political work to the fore by empowering and enabling people to take action. In doing so, practitioners of informal, non-formal and community environmental education are encouraged to move beyond maintaining the status quo that is constructed by traditional conservative classroom teaching, and to instead move towards reform or transformation of society (Russell, Bell & Fawcett, 2000; Russell & Hodson, 2002). There is thus a strong activist tradition in environmental education, and the marine educators exemplify this.
As Russell & Hodson (2002) argue:

“(t)he keys to the translation of knowledge into action are ownership and empowerment. Those who act are those who have a deep understanding of the issues (and their human and environmental implications) and feel a personal investment in addressing and solving the problems. Those who act are those who feel that they can make a difference and who know how to do so.” (p. 490).

The marine educators are committed to sharing their understandings, and love, of coastal and marine environments with others. Through their pedagogical activities, they provide opportunities and encourage their learners to form connections with the natural coastal marine environments. In doing so, the marine educators enable their learners to develop an appreciation and understanding of the environment and with it a sense of empathy and personal investment that eventually culminates in the desire to act. By providing information and knowledge about how to take action, and by empowering community members to involve themselves in key political and decision making activities regarding these areas, (such as government policy decisions), the marine educators aim to inspire their learners to become actively involved in supporting pro-environmental ends.

By actively lobbying the government(s) to change the social and environmental outcomes for the coastal marine environment, and by encouraging and empowering others to do the same, marine educators can be justifiably characterised as ‘activist’. According to Roth (2010) “the point of activism is to change the world, not only to make it a better place to live but also to change consciousness” (p. 285). For much of the marine educators' lives – both personally and professionally – they have been deeply involved in acting for the coastal marine environment. A number of those interviewed (but not all of them) explicitly referred to themselves as ‘activists’. However, if the work they are all involved with is examined closely, it becomes clear that they are all in the business of activism. It also becomes apparent that their activism is central to understanding who they are and what they do. In this way, the term ‘activist’ when applied to the marine educators becomes more than a label - instead we see that it forms an intrinsic part of their identity.

From this special position the marine educators act to influence not only the public and their environmental understandings, through their educative actions, but policy, through...
advocacy at the legislative level. They play a significant role in liaising with the general public, informing and interpreting policy and enabling people to contribute to the decision-making and formation of marine-related legislation. By providing opportunities for community educative experiences and interactions within the coastal marine environment, and by acting as community (and environmental) advocates, the marine educators directly and indirectly shape policy.

The mediatory role the educators play between the community and government policy is as complex as that they perform between education and the community (discussed in Section 7.2). They assist in shaping policy by inspiring and empowering public members to make deeper connections with natural environments. These are potentially passionate, unifying and transformative. Through designing and delivering programs that inspire pro-environmental behaviours, the marine educators are empowering community stakeholders who are potential participatory decision makers. The marine educators' personal aesthetic understanding, values and commitments inform their interactions with policy (including the need for education to be foregrounded) and underpin their interactions with the community.

The marine educators' firm belief that the public have a significant role to play in the environmental decision making process informs their pedagogical understandings and actions. Through identifying and empowering some of the many public voices, the marine educators act as advocates for the community. Both through this advocacy role and their personal actions as marine practitioners and environmental activists, the educators act on the policy development process, thereby, acting as agents of change. This role of the marine educators as advocates and agents of change frames (and drives) the role they fill as mediators between government policy and the community (see Figure 7.4). This role is explored in this section and, again, drawing on Dewey's theorisations of aesthetics and aesthetic values, the understandings that inform this mediatory role are also explored.
The marine educators’ stories gave insight into their perceptions of government policy and community interactions. Their status as experts as marine practitioners and as educators enables them to adopt an informed position from which they are able to view both the policy-development process and the extent and role of community participation. This positioning allows them to adopt the voice of knowledgeable and insightful informants and commentators on this policy-community interaction. In this section, it is this voice that is heard as the educators observe and comment on: the variety of community voices; where there is a lack and dominance of voice; empowering the community; and community-government interactions. Both their views and their roles as actors within this interaction are explored.

### 7.3.1 Marine Educators and Community Voices

The impact of increased industrialisation and urbanisation in coastal marine regions is becoming progressively apparent as the population shift to these areas intensifies over time. The damage to these environments flows from the unprecedented pressure that is being placed on these fragile areas, much of which results from the infrastructure that is required to perpetuate this growth. However, the day-to-day activities, behaviours and lifestyle choices of individuals that comprise the developing coastal communities also have a collective impact that contributes to this environmental degradation. Research has found that successful ecosystem management approaches rely on considering the interdependency of the natural resource and the ‘user communities’ (Maguire et al, 2011; Maguire et al, 2012; Pomeroy and Douvere, 2008).
There is an increase in the number of policies and legislation (both nationally and internationally) that recognise the need for the general public to be informed about coastal marine environmental issues. As the global population increases and the pressure on coastal marine environments escalates effective community-based education and involvement in resource management via stewardship programs is becoming increasingly important.

Kasperson argues that “(w)e live in the heyday of the stakeholder express” (2006, p. 320) as the call for stakeholder involvement is globally recognised as a tool for improving “developmental decisions”, particularly those that are complex and contentious. The understanding that broad public involvement will improve decision making now underpins many management strategies. This is reflected in the literature (see, for example, Beierle and Cayford, 2002; Drevenšek, 2007; Kasperson, 2006; McKinley & Fletcher, 2010) that concludes that public involvement culminates in decisions that are responsive to public concerns and values, educates the public about the environment, and helps to resolve conflict, thereby making policy implementation easier and more effective. Ultimately, encouraging the public to take part in coastal marine stewardship and other conservation programs, increases their awareness and understanding of the possible consequences of personal actions.

**The need for a variety of community voices**

McKinley and Fletcher’s (2010) study of UK marine practitioners’ perceptions of the role of the public in marine and coastal governance (and the potential role of public marine stewardship) found that the marine educators believed the public had an active role to play in marine decision-making. They also found that early engagement was “the key to encouraging active involvement from the general public in marine governance” (p. 380).

Consistent with these findings, the marine educators in my study had a strong belief that members of the general community should be involved in the decision-making process, especially in the development and management of their local environment. They argued strongly that a variety of community members have a policy voice, and that it needed to be
heard. One such voice was that of environmental professionals who had been working in and around the marine coastal environment for extended periods of time. The marine policy literature shows that scientists play a “crucial role in balancing short-term economic concerns with potential long term economic and ecological benefits” (Pomerory & Douvère, 2008, p. 810). Calvin argued that government decision making needed to involve much more consultation with the research scientists who had an in-depth understanding of the limitations of the ecosystem.

_I think there has to be a real shift in the government to listen. Not to the commercial interests of exploiting the environment but more of a focus on listening to the professionals that know something about the effects of exploiting the environment so there’s more of a balance._ [S1CP: 117]

Reflecting his personal place-based philosophy, Rick advocated involving in the legislative decision making process those people that planned on staying in the coastal community to which they belonged. This included the First Nations people who, he felt, had a clear connection to the coastal environment as they had been there for thousands of years and had a lot to say about the environment and policy making. He went on to describe how people in fishing communities (who also planned on staying and wanted their children to continue living in the local environs) had good insights into how the area (and its resources) should be managed. In fact, these two groups are listed as being important contributors to policy in a number of official acts and strategies.

Similarly, as a knowledgeable commentator and advocate, Geoff strongly believed that the general community in Australia had a role to play in policy decision making and that the public needed to recognise and understand this. As Chair of the reference group for the Coastal Management Act (1995), Geoff made recommendations to the Minister on what the Act should contain. He described how the original structure of the Coastal Management Act (1995) enabled a matrix representation on the Coastal Council that ensured a complete gamut of stakeholders was represented to speak for various members of the community, their attitudes and views. Geoff’s belief, and actions as a government advisor, in ensuring that the Coastal Management Act (1995) provided good coverage of the pertinent interest groups, reflects his somewhat holistic (and encompassing) belief that everybody should have the opportunity and the available process to have a say in how policy is developed.
I don’t think any one group should dominate it at all, because it is very much a multifaceted area with lots of use and lots of conservation needs. It’s more about making sure that everybody gets their say rather than anybody dominating the argument. [S2GW: 52]

It seems, however, that with the exception of those that have power (that is, large industries) or money (that is, wealthy individuals), few voices are loudly and clearly heard in policy decision making. The suppression of other voices could result, as Geoff suggests, from disinterest, lack of emotional or economic connection to an area, or, as Mark has indicated, a lack of opportunity – perceived or real – that an individuals’ voice could be, or would be, heard. Even though governments may include scope for community members to be involved in decision making processes, these paths for input are only effective if people are aware of their existence, they are easy to access, and people feel they will be listened to and their views incorporated.

**Concern about lack/dominance of voice**

According to the marine educators involved in this study in both countries, there is limited input by the local communities into the development of policies and strategies related to the coastal marine environment. This appears to be more the case in British Columbia than in Victoria where the government(s) encourage community input at the policy strategy and planning stage. One such effective paradigm for involving the community in the planning process, as Harry explains, is the Parks Victoria model of marine park planning (and the associated advisory groups). The marine park model encourages and enables community representative on planning groups and individual action in volunteer stewardship roles in local public working groups. The extensive community consultation that is sought by the government(s) in deciding key policy directions in relation to marine parks, which Mark described, supports this view of interactive government practice. However, even in Victoria translating these plans into action can be inconsistent and public involvement could be improved (as is discussed later in this chapter).

The marine educators provided insight into the voices that were influential in policy development and the ways in which both people and policies are influencing the coastal marine environment. Despite government inclusion policies, the public voice tends to be dominated by large organisations, government departments, or those with a strong
agenda. These influences take a variety of forms and can affect policy direction, personal ideas, and/or major projects.

Larger stakeholders, like industries, have a potentially huge impact on both the national economy and on the environment. For instance, in Canada, fish farms have an enormous impact, not only economically, but also ecologically, and are both an increasingly significant issue and a stakeholder in Canadian coastal policy. In addition, Patrick described how some NGO groups could also have a strong and influential presence in both legislation and education. By attracting the attention of the media NGOs can foreground environmental issues in the public arena. Rick explained the significant impact the NGO groups can have as a result of effectively utilising the media (and public educational/interpretive programs) to get the government to listen to them.

...these NGOs and Foundations can also have a tremendous impact on public policy discussion by non-school based, community based environmental education and interpretation. So they have an increasing role. Governments do listen to these guys sometimes, cause if they don’t, the press will listen. And the governments, they didn’t want to hear about some of these fish farming issues. The press did, and then the Government had to respond. [S1RK: 104]

As the environmental policy literature shows, volunteer groups also have the potential to be highly influential in a variety of ways, including acting as a liaison between the government and individuals, empowering local communities, and initiating social change (Gooch, 2004). The notion that community groups can be influential and play a part in policy and strategy decision making is reflected in Geoff’s narrative, however, as he explains this was not necessarily that of a ‘driving role’ and, therefore, had its limitations.

Some of the potential inhibitors of community group input into government policy development and implementation that were raised in the literature were also expressed by the marine educators interviewed in this study. These inhibitors or “limitations”, if not addressed, could shape the effectiveness of local community group contributions into the government policy process, potentially leading to disenfranchisement and disempowerment of the groups. Rick, for instance, argued that a community group’s clear vocalisation of their input (and therefore their concerns) has been inhibited by the lack of a coherent voice. As there are many stakeholders vying for their views to be heard, a
community group’s voice (or even that of an individual) may sometimes not be loud enough for the government to hear.

I think there’s been a lot of, you know, attempt by the communities to really feed into government processes. The governments have tried themselves, but you know there’s never a single voice that comes out of the community which is great for government because they listened and they’ve chosen to hear back biting. One set of voices and not the other, so it’s not particularly coherent... not everyone in the community will feel like their perspectives were taken. [S1RK: 139]

This is consistent with Gooch’s (2004) finding that some groups and their members experienced feelings of powerlessness and being manipulated (particularly when attending meetings with different stakeholders) in relation to contributing to the decision making process. Similarly, Ife (2002) found that in order to influence decision making, participants needed “the ability to perceive the motives of other players, and to understand how those in power can try to manipulate others” (p. 54).

Government agencies may see the benefits of community involvement and ownership over coastal marine areas, and actively encourage this participation, however, they may not necessarily expect, or want, the community groups to tell them how to manage the area. According to Pretty (1995), this leads authorities to view community involvement as a “two-edged sword”, as agencies need public support and agreement, but fear losing control and/or slowing down or delaying the planning and implementation process (Pretty, 1995, p. 1252; Gooch, 2004; Mitchell, 2005). Although government authorities are increasingly looking to the public to help address environmental concerns, as the literature suggests and Geoff’s narrative mirrors, this does not necessarily translate from a hands-on ‘caring’ role to a position of shared responsibility in management planning and implementation.

Now that... one would think was the progression from a sort of Coast Care type Friends role. But you do come up against sort of institutional factors. People are very happy in agencies to have somebody planting your sand dunes. They’re not so happy when the groups start to tell them where they think they should be planted. And so we’re caught out there that the sort of extent of their involvement in limited by the agencies that service them and then, for whatever reasons, and some are good reasons, some are bad reasons, some are actually just territorial reasons and about power. [S2GW: 121]

This can have the effect of muting or even silencing the voice of some community groups if they feel that they are not being listened to or supported, particularly if community
involvement is undertaken as a token gesture rather than with intent (Gooch, 2004; Pretty, 1995). Calvin illustrated this when he gave examples of how some community members felt that they did not receive support from government agencies, financial or practical. He also described how some individuals were reluctant to give their input into government strategies as the information they had provided in the past had been misused to the detriment of the environment they had wanted to protect.

Although the marine educators recognised the existence of extensive communication pathways between governments and local communities, they also expressed concern at the viability of the information that was received and imparted. Mark, for instance, discussed how one of the issues that concerned him in his role as program manager for the coastal program was how to get more information about what communities actually wanted and needed.

*I guess what I’m saying is that there are some avenues where communities and government agencies actually do obviously communicate well... the Coast Action/Coast Care Program is very much about working with local communities, and our facilitators have very much got a community focus to their programs, to their individual work programs. So they actually go out and deal on a daily basis with community groups, so they’re getting a lot of information. How that information is collected and gathered though, what sort of tools are there to actually capture that information and make that part of policy, I’m not so sure on. I actually see that as being a little bit of a gap in some ways, is actually how we get some sense of the needs, as seen from communities on the coast, in terms of addressing particular local issues. I don’t think we have a good method of capturing information and that means then a lot of projects will continue to be developed on the basis of what the agency sees as being important and not necessarily what the community sees as being important. [S2MR: 243-5]*

The question Mark raises is how can community groups be supported effectively to ensure the preservation of local coastal marine areas, and how can opportunities for community contributions to decision making processes regarding these environments be enhanced – or indeed, if they should be.

The result of marginalising or silencing the public voice results in limiting the scope of community involvement in the management of coastal marine environments. This means that, although community involvement in government policy and strategy design is encouraged, (to a limited extent in British Columbia and to a slightly more extensive level in
Victoria, Australia), there is little (if any) scope for community groups to be involved in the translation of these policies into action.

Empowering the community

The marine educators described a number of ways to enhance and improve opportunities for local communities to contribute to policy and strategy decision making in relation to the coastal marine environment. These ranged from ideas to encourage communities to become involved, to proposals for how the government(s) can support community groups once they become involved. Susan, for instance, suggested that further educational and interpretive efforts would encourage more public involvement in decisions and make them more aware of the complexity of the issues surrounding these environments than what they obtain from media sources:

> I think that if there was more marine and environmental interpretation, public beach days, open houses around shorelines and coastal habitats, educational workshops about how to plant on waterfront properties to support wildlife and prevent erosion – those sorts of educational efforts would help and encourage more public involvement in decisions. We need to stop the polarization that seems to always happen around developers and growing the economy on one side and conservationists / naturalists / environmentalists on the other. The issues are much more complex and interdependent than what the media paints.

[S2SS: 32]

According to the marine educators interviewed, the survival of community groups was dependent upon the support that they received. The supporting factors that enabled effective and long-term functioning public (and voluntary) groups that were outlined by the educators were also reflected in a wide range of literature. These included the need for: recognition and validation of the community group’s role and contribution (Gooch, 2004; Ross et al, 2002; Ulrich, 2000); government support (incorporating funding and resources) (Clarke, 2006; Ewing, 2000; Gooch, 2004; Nelson and Pettit, 2004); assistance in gaining skills and confidence to participate effectively (Gooch, 2004; Jennings and Lockie, 2002; Smiley et al, 2010); and providing further pathways to enable growth and empowerment for individuals to become environmental stewards and equal partners in environmental management.
Calvin believed that it was important for people to know that their data was going to be used appropriately and that they get the necessary scientific training to become local experts. As he pointed out, community groups may not have the appropriate knowledge, however, they often do have incredible enthusiasm and energy that, if nurtured, can be invaluable in the conservation and preservation of natural environments. By recognising the community groups' status as local experts and validating their work, these groups are encouraged to take a more active role in the environment, thereby becoming environmental stewards. He argued that it was essential that this recognition and validation occurred if community groups were to retain their enthusiasm, and that necessary scientific training was provided when appropriate if the validity of their environmental monitoring and data collection was in doubt.

The marine educators were also of the view that community groups needed to be supported with annual funding to enable them to continue operating and in recognition that their actions were useful and appreciated. The process of having to constantly apply for small grants can lead to burn-out, particularly if the onus rests with one or two individuals. As Calvin argued, the dissolution of local community groups often stems from the loss of enthusiasm or of a key inspired individual leaving the group.

Because right now they either take it out of their own pocket or get a grant from some corporation and a lot of people just get burnt out writing grants and try and get 5000 here and 2000 there to do something and what I've seen is a lot of these programs just fade away because the core group loses enthusiasm cause they're not supported. If you could maintain that enthusiasm, keep support, and renew the membership and the group each year then you've got something. But I've just seen too many environmental... even programs at school, just die because the person who was keen on it left and that's it. No more program. Nobody has the enthusiasm to pick it up. [S1CP: 146-47]

Providing the community groups with financial support and recognising their roles as 'local experts' was essential according to the educators. However, Geoff argued that it was also important to provide a pathway to extend this voluntary role into something more participatory. He described how the role that is formed by the sort of community activity that 'Friends' or ‘Coast Care’ groups could be developed and used in an educational framework that sought to empower individuals to take on a stewardship role. Geoff's point is supported by literature that shows some community-government programs (such as Coastcare) impart a stewardship ethic (Clarke, 2008). As Geoff suggests, the objectives
and motivations of individuals, community groups and government agencies are likely to change over time and result in (or even stem from) different objectives and expectations (Larson and Williams, 2009; Measham et al, 2009; Smith and Smith, 2006).

Engagement of stakeholders in environmental planning and management is not a static end-point but a dynamic process that requires adaptation and change “in response to changing community and government priorities, conditions and personalities” (Larson et al, 2010, p. 841). The literature also shows that community groups need to be allowed to play a more significant and direct role than merely providing a source of labour which can lead to individual or group ‘burnout’ (Byron and Curtis, 2002; Measham and Barnett, 2008).

7.3.2 Community-government interactions

Volunteer groups undertake many of the tasks that were once the sole responsibility of government departments (Harvey et al, 2001; Measham and Barnett, 2008). In Victoria, Australia, as in British Columbia, local community groups have become the mainstay of coastal marine environment stewardship. In both state and province there are programmes and governmental infrastructure to support these groups. However, it seems from the stories of the marine educators interviewed in this study that Victoria provides a more direct pathway in communicating with local community groups and encouraging their involvement in the protection and conservation of their local coastal marine environment, despite the strong stewardship programs that exist in Canada.

According to the marine educators from British Columbia there appears to be very little in the way of connections between government and local communities. As Patrick explained, it is more about local community groups taking care of their own local environment and not necessarily relying on the government to assist. When asked what the connection was between government and local communities, he responded that:

*There’s really not a lot. There’s not a lot. There are really strong community groups that are… they’ve got their local patch and they’re looking after it and they’re doing a great job of it.* [S1PO'C: 219]

Governments are complex entities that comprise many different agencies responsible for various aspects of the environment. Although the roles of each department are clear in theory, gaps and overlap in perceived responsibilities frequently appear in reality. These
conflicting realities result in role confusion and complex bureaucratic processes that can hinder both policy decision-making and community contribution (Gooch, 2004; Millar, 1997). This internal competition, as Patrick argued, results in many government operations finding “homes in a lot of current issues…. Fisheries will be responsible for environment and fisheries at the same time”. [S1PO'C: 159]

The lack of coordination within and between the various government agencies and the stakeholders has been identified as a problem in the past (Bellamy et al, 2002; Gooch, 2004). Such a lack can undermine government-community communication that can lead to confusion as Susan described in her narrative. She described how this confusion led to lack of coordination and communication efforts, which ultimately proved detrimental to the coastal marine environment.

*I think that there is much overlap between agencies but that the territoriality that exists in government departments gets in the way of good coordination, communication and collaborative efforts to work together for the good of the environment.* [S2SS: 29]

The Department of Fisheries and Oceans (DFO), for instance, is a Canadian Federal Department so they are unable to directly fund education that is under provincial/territorial mandate. Instead the agency supports marine and coastal education by funding educational outreach programs that have a strong environmental stewardship focus (for example, Salmonids in the Classroom, Shorekeepers, and so on) and providing public information. However, the DFO’s strategic direction, like all government departments, is subject to the prevailing political wind and, as Calvin flags, is under pressure to please a number of different interest groups:

*…they’re under a lot of pressure right now to now please the First Nation groups, and the fishermen, and all sorts of Federal pressures, plus there were a lot of new cut backs… there’s very little support from the government right now to do this “Citizen Science” as they call it.* [S1CP: 36-7]

Despite these concerns and perceived problems, some effective community programs that encouraged a stewardship ethic were identified by the educators. Examples of such programs that Patrick mentioned were the BC stewardship program and the Pacific Salmon Foundation. The BC stewardship program is a Federal-Provincial-Territorial initiative aimed at engaging the Canadian public in collaborative stewardship actions at local, regional and national levels (Environment Canada, 2002). The Pacific Salmon
Foundation incorporates the stream keepers program, and, although it is not necessarily connected to the government, it is consistent with local government policies (including the salmon hatcheries that the government supported in the first instance before it became community operated). Although, as Patrick pointed out, these programs are predominantly focused, again, on salmon, one of the province’s major industries: “it’s all about salmon basically…everything is about salmon” [S1PO’C: 215].

In addition, Rick argued that, although the provincial British Columbia government had done little to engage the public the federal government, through the Department of Fisheries and Oceans had been actively engaging in communication and collaborative projects with community groups. As a result, he explained, there were local fisheries advisors and community advisors working with communities “up and down the coast”. Drawing on his personal activist experiences, Rick reflected on an aquatic based program he had co-created called Water Stewardship, and described how the design of this program was grounded on the concept that people are caretakers of the environment rather than owners of the sites:

“So when we put this water stewardship program together we had the idea that we don’t own the oceans. We don’t own the lakes and the water reminds us that we can’t own them, but we can care for them. Stewardship, to me, comes down to non-possessive care” [S1RK: 137].

Communication between government agencies and local community groups in Australia was described in positive terms by the Victorian marine educators. Both the Australian federal government and the Victorian state government were perceived to include the community in decision making processes. This interaction occurs through a variety of channels, according to both Harry and Mark, including: the State government established Coast Action program; and the Parks Victoria community advisory groups formed to assist in the development of each marine park management plan. Harry described his personal input into government marine plans both as paid inspirational speaker to these community groups, and as a voluntary member of one of them.

So I dips my lid to Parks Victoria for that level of community involvement. And they really do… that input to the marine park planning process is really important…. And so, yes, government departments are now, in their planning process, involving a lot of community people and they don’t always specify an educator but education is seen as an important part of that. [S1HB: 339-41].
At a federal level, governments in both countries were seen to be developing pathways to communicate with, and involve, the local community groups. However, at a state or provincial level this process was not necessarily as clear. The British Columbian provincial government was not seen to be offering much support or encouragement to community members to be involved in policy decision making or planning activities. As discussed earlier in this section, this could be the result of a difference in government mandates for responsibility or the understanding that the Provincial Stewardship Program addressed this aspect of community involvement. Either way, the marine educators strongly believed that the role of community groups in policy development was very important, particularly when it related to the local environment with which the community was a part.

7.3.3 Marine Parks, Community and Policy

Marine parks are important sites for environmental protection and activism in policy. How the marine educators have been involved and their role in this process is explored in this section. The differences between Victoria and British Columbia will also be teased out to determine if the roles of the educators varies with the respective legislation.

Around the world, marine protected areas have become increasingly regarded as a valuable conservation and protection tool. A new and innovative approach toward planning for a network of marine protected areas in Canada, including the effective use of an array of marine protected area instruments ranging from no-take marine reserves to multiple use areas, will contribute to the improved health, integrity and productivity of our ocean ecosystems. (Government of Canada, 2005, p. 6)

Throughout the world, and even throughout the states and provinces of individual countries, there are different management models in place in relation to marine protected areas. Some, as the quote above shows, allow a multitude of activities – both commercial and recreational – to take place within the site under protection. Others are completely closed off to all but the least ecologically disruptive activities, while still others are a combination of both. Even to the extent of what these protected areas cover, that is, whether it is a particular location, a habitat, or an entire ecosystem, varies from government to government.

There was less confusion regarding the Marine Park Areas (MPAs) amongst the Victorian marine educators, which could have a dual cause: that the system in Victoria, Australia, is
slightly less complex (see Chapter 4 for legislation); and that most of the selected marine educators had input into the MPA policy making process (albeit to varying degrees, but always over a prolonged period of time). In their narratives, both Mark and Geoff described their contributions to the MPA legislation highlighting the different roles they adopted throughout this process. Mark’s role was that of an informed community member, both as an individual and as the President and Victorian delegate of the Marine Education Society of Australia. In these roles, and over the course of the 10 years lead up to the parks being created, Mark provided substantial input and advice during the periods where public comment was invited.

Extending over a 20 year period, Geoff has consistently taken on a central role in the establishment of the MPAs in Victoria, by adopting the role of environmental activist, advisor and, more recently, academic critic. Beginning his story early in the process, Geoff described the evolution of his role from initially ensuring the (then) government implemented their newly developed policy to investigate the establishment of marine protected areas; to his membership as advisor on the National Parks Advisory Council; and later on the Coastal Council and Parks Victoria. The role Geoff now claimed for himself was that of academic critic wherein he provides a critical perspective of what is happening.

As Harry pointed out, although the Victorian MPA policy is “a very tricky piece of legislation”32, it is a world leader in how this sort of thing could be done. Unlike British Columbian MPAs, Victoria has quite restrictive policies regarding what activities can be carried out within these protected areas. Similar to Canada, however, the policy models within Australia differ enormously from one State to another. For example, some states have quite large regions that have within them specific zonation that allows different programs and different activities to take place. This includes opportunities for recreational fishing and, in some cases, even commercial fishing, as well as tourism development and other related activities.

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32 According to Harry, it is the technical legalities of the legislation that are ‘tricky’ because of the commercial fishers and whether the area is declared under the National Parks Act or some other Act, that is which Act it is declared under is very tricky. This is similar to the issues that confront the Canadian and British Columbian Governments.
The Victorian MPAs are established around specific habitats or environments, although whether these areas are truly representative of habitats is debatable according to Harry. He argued that it was important to select representative areas of habitat rather than creating parks around those areas that other industries didn’t want, but appeared unconvinced that this was how the process was actually implemented:

*We’ve been so successful in Victoria with our marine parks planning process in the state of Victoria that it is a world leader… you know, what we’ve done in Victoria is world leading stuff. Because of the way it’s been done and the 10 years it’s taken. This process is basically… and I don’t mind saying, give the oil industry, give the fishing industry what they want and you guys can have the bits that are left. And that’s in terms of parks planning and all of that kind of thing, is 19th century thinking.*

Unlike places such as British Columbia where the fishing industry is a major stakeholder in the coastal marine environment, Victoria does not have a large commercial fishery industry that would need to be replaced. This has a substantial impact on the ease and effectiveness in creating and maintaining marine protected areas. For example, as Mark explained:

*The Korean people were staggered by the fact that we’re actually able to fully protect the likes of the coastal waters in Victoria. They couldn’t understand… they were asking questions like “well what about all the fishermen?” “What about all the people who are using those areas now?” Well, the reality is we did not have a big commercial fishery industry that utilized this. There was some displacement and some issues, but compared to somewhere like Korea where people are very much a part of that environment and had been for many countless hundreds of years, it’s quite a different situation.*

British Columbia has a significant commercial (and recreational) fishing industry that is a stakeholder voice that needs to be heard and included in the MPA decision making process. The concerns of stakeholders such as the fishing industry, could account for the reduced number of sites that are classified marine reserves within the province. As some of the Canadian marine educators have explained, although there is legislation in existence, not enough was being done to take up the opportunities to establish marine protected areas in Canada. Calvin, for example, described how there were now many opportunities for establishing marine areas that could be taken, however, these were not explored due predominantly to political issues. Race Rocks, he explained, was supposed to be the first MPA for Canada declared under the Oceans Act, but it was never passed due to lack of agreement amongst the relevant stakeholders, including the provincial and
federal governments. Although an MPA had now been established off Vancouver Island, Calvin expressed his (and others) frustrations at the amount of time – and the number of opportunities – that had not been taken to create more such marine protected zones.

But they’ve got so many other opportunities and haven’t acted on them - its way too much politics. And so that frustrates DFO people. They’ve worked on these things for a long time and then they just get shafted. And then they get bad press over the whole thing and they look bad again. DFO does not have a good reputation in Canada, I can tell you. [S1CP: 123]

In both Australia and Canada legislation exists to protect important marine habitats and areas (see Chapter 4), however, the marine educators expressed concern that enforcement of the existent legislation lacked power, and therefore full protection of these marine ecosystems was left in doubt. The ability to fully protect these marine areas, as Victorian legislation attempts to do, is based on our communal cultural understanding of these environments. Victoria (or even Australia) does not rely as heavily economically on our coastal marine environments as British Columbia. This was evidenced in Patrick’s description of British Columbia as a strongly resource-based province. He argued that inhabitants of this province, therefore, held (and reflected) a different communal cultural understanding to that held by Australians. Consequently, this understanding has an impact on how the community will influence the way in which policies are established and areas protected:

It’s all about catch it or chop it down and ship it out and that’s the way we’re finding it. Victoria is a great big natural resource, Vancouver is the market. All the money in Vancouver has historically been based on resource extraction, that’s what it is. [S1PO’C: 172]

As evidence of the harm being done to the world’s oceans and marine environments becomes more apparent, policy makers, ocean managers, and scientists are investigating the potential role of marine parks in protecting these fragile environments. The Australian structure of marine protected areas and uniform marine zoning system have been flagged as a leading model for marine conservation (Schorr, 2004). As discussed above, this legislation has evolved over a number of decades and has been driven by the passion of a variety of individuals. The Victorian MPA legislation has provided an important avenue for the marine educators to advocate for marine conservation and to enable marine education to be included within the government policy decision making process.
7.3.4 Section summary

In section 7.3 I have discussed the role of the marine educators in the link between government policy and community involvement in decision making. I have argued that this link complements the role the marine educators play in helping others to develop a sense of connection to a place and, through this, an ecological and social identity that ultimately leads to environmentally responsible behaviour (McTaggert, 1993; Mueller Worster & Abrams, 2005; Orr, 1992; Smith, 1992). In doing so, their activism has a dual focus – to advocate for the community having a voice in policy development, and to actively encourage community members to take pro-environmental action through stewardship and/or political activity. What drives their role in this mediatory activity is their personal aesthetic understandings and their own sense of place.

7.4 Education Programs – Marine Educators – Policy

Limited government funding, serious environmental incidents and increased and competing uses of coastal ecosystems, have highlighted the necessity for governments and their agencies to adopt a collaborative, integrated approach to coastal marine management. As a result, governments globally are attempting to come to some understanding of participatory decision making and the most sustainably effective manner in which to include community stakeholders in this process. The success of this approach hinges on maintaining public awareness, involvement and commitment to coastal management.

Consequently, there are a variety of legislative tools in both Australia and Canada that direct the management and protection of marine and coastal environments, a number of which contain reference to education, interpretation or community participation (see Chapter 4). These acts, policies and strategies reflect the governments’ (international, national, state and provincial) growing recognition of the role of local communities in developing and implementing policy and the increasing activity by marine environmental lobby groups and individuals. The number and range of stewardship and education programs have correspondingly increased, as has the role of marine environmental education.

Marine educators play a significant role in designing and delivering these informal (and formal) education programs. Through lobbying they attempt to ensure government policy
includes educational components and objectives to assist in community involvement and participation. However, as most of the stewardship programs are managed by government departments and instigated through legislation, the resultant education programs are necessarily limited by the governance policies from which they originate. In this way, marine educators mediate between education and government policy, as is represented in Figure 7.5.

The need for broad-based education programs that parallel the development of governance systems for integrated, collaborative coastal zone management has been highlighted (Wescott, 1998). However, there is reluctance on behalf of many government agencies to engage the secondary and tertiary educational sectors in implementation of policy, thereby limiting aspects of prospective educational programs. Given this situation, I argue that informal education opportunities address legislative demands, encourage public participation and appeal to a broad audience; it is these educative opportunities that are essential in matters pertaining to maintaining public awareness, involvement and commitment to coastal management.

The complex relationship between policy and education, and the role of the marine educators as mediators within this relationship, is explored in this section.

7.4.1 Education provision within marine legislation
The implementation of legislative strategies and plans require an aspect of broad-based education to be effective. Whether this is framed as ‘communication’, ‘knowledge transfer’, ‘awareness raising’ or ‘engagement’, education has been an essential element in policy
implementation. However, until recently, few governance documents have incorporated explicit education objectives.

Historically, education has been perceived as being embedded within government policy and, therefore, it was deemed unnecessary (and irrelevant) to include specific education objectives. This reflects the long held view that education was a management tool and one of a number of opportunities for communities to engage with the issues or even with the environments themselves. Mark provided an example of this view when he explained that, although he saw education as important, he saw it sitting within a broader context of community engagement with the marine environment as a whole, rather than being a specific end in itself. In this way, education was seen as one of an array of management tools used to engage the community in environmental issues.

> Interpretation and education are both tools to achieve what we are trying to achieve and that’s essentially about trying to engage communities and individuals and give them… an understanding of the values, and the things that are needed to be done to look after a particular coastal environment… [S2MR: 175]

The recent global shift in environmental management to engaging public participation has had an impact on the framing of the role of education in government policy documents. Valencia-Siaz (2005) refers to this shift as the ‘turn to citizenship’ in which “the state reforms its relationship with its citizens to incorporate environmental rights and responsibilities to its model of citizenship to achieve national level policy goals” (McKinley and Fletcher, 2012, p. 840). The marine policy literature shows that with this shift towards marine (or ocean) citizenship and integrated coastal management implementation, comes a need for education (and science) to be “internalised into the policy process by creating legally binding relationships from which professional norms can evolve” (House and Phillips, 2012, p. 500).

For a long time, Geoff has argued and lobbied for education to be recognised and incorporated into government legislation. Now, educational objectives that encourage and enable community engagement have been included in a number of governance documents including the 1995 Victorian Coastal Management Act, and the Victorian Marine Protected Area policy (from which the Parks Victoria marine program results). Geoff explained that the Parks Victoria marine policy strategy incorporated four key elements, one of which was
regarding educational communication. The initial community education objective, according to Mark, was to encourage an awareness of the natural and cultural values of the marine protected area system.

...the initial work was just simply trying to get an awareness to the fact that “wow, we’ve got a unique and diverse marine environment out there that’s worthwhile protecting”. It’s still early days in terms of getting that... there’s still a long way to go and we’re still continuing to try and raise the awareness and the value of the marine park on our coastal marine system in Victoria. But the PV education program is very much a direct response to, and are very much a part of, - integral part of - a community engagement component of the marine national parks implementation. [S2MR: 206-8]

The Coast Action/Coast Care Programs in Victoria have also had a direct influence on Marine National Parks, Mark explains, by developing resources to promote Victorian MPAs through the State-wide interpretive summer programs (that are operated under the Coast Action/Coast Care banner). Recently these programs have incorporated a partnership arrangement between a number of coastal marine education stakeholders (for example, DSE through Coast Action, Parks Victoria, the Marine Discovery Centre, Melbourne Aquarium, and so on) that have sought to promote two key messages in their programs. One of which was about Marine National Parks.

So that’s I guess ...a broad based community interpretation program that’s very much focused, and has been focused the last 3 years, on Marine National Parks. [S2MR: 214]

Government documents are often written with intentions referred to or alluded to but not necessarily stated outright. This is generally so that the document does not become a directive or unusable because it does not suit a particular situation. Broad-based objectives are often stated in such government documents so that implementing bodies are able to adapt the objective to their local environment. However, this can be problematic as the value and significance of some elements (for example, the role of education or community involvement in implementation of the objectives) are lost as they are not stated clearly. The intent of governance documents, and the transference of these intentions to practice, are discussed in the following section.
**Government policy and intent**

Government policy documents regarding the marine environment were generally written to protect and conserve the natural resources, while ensuring that user interaction was sustainable (including commercial and recreational users). The intention of these documents was to encourage people to appreciate the environment in an ecologically friendly manner.

The need for legislation that effectively protected marine areas was raised by both Canadian and Australian marine educators. However, as Susan argues, this legislation may not have much power unless on-ground policing occurs to ensure adherence to the law. Integrating education into marine legislation (and ensuing management programs) provides a greater opportunity for attitude and behavioural modification than enforcement alone.

The tension between education and enforcement presents a constant concern for both policy makers and managers of marine and coastal environments, according to Harry. He believed that legislation contained the *intent* of education, and argued that some government agencies (for example, Parks Victoria) had picked up on this concept and, consequently, integrated education as a key component of good management (particularly of marine parks). However, he pointed out that those that enforced the laws (for example, Victorian fisheries officers) also needed education, particularly in relation to methods of approaching and educating the community on various marine and coastal issues. The effectiveness of education in changing attitudes and modifying public behaviour, Harry explained, was greater than the conflicting concept of using enforcement or technology (for example, the use of traps in litter control).

**Transferring policy into practice**

In Canada, the marine educators indicated that there was little or no legislation that encouraged education to be included in any planning although, as indicated in Chapter 4 there is legislation that does refer to the significance of incorporating education and interpretation in planning and management. This indicates that the government(s) are not getting their message to the appropriate educators (and arguably, therefore, to the public).
In Australia, the situation is slightly different as, according to the Victorian educators, education was still seen by some agencies as being external to the core management plan. However, this perception, as Mark argued, was policy dependent. He contended that some policies (for example, the Marine National Park Strategy) saw education as one of the major directions for the program to encourage broader community engagement.

In his discourse, Mark provided a recent historical perspective of the Victorian coastal marine legislation, highlighting the expressed commitment to community engagement and education embedded in both the Federal Oceans Policy and the South East Regional Marine Plan. The challenge, he explained, was to transfer these policy frameworks into workable everyday plans that had the agreement and approval of all stakeholders.

In both Victoria and British Columbia, there exists a complex system of Federal and State/Provincial governments having responsibility over different elements of the coastal marine environments. This contributes significantly to the challenges of transferring policy into practice. In Victoria, this situation improved, Mark argued, when legislation in Victoria changed dramatically due to the establishment of the Victorian Coastal Council. Prior to this, there was a broad range of policies and agencies that were responsible for different sections of the coast (see Chapter 4), which led to confusion. However, with the Victorian Coastal Strategy seeking to bring multiple layers of responsibilities together, this complexity, he assures, has decreased considerably. Nevertheless, according to some of the other educators, it is still extremely complex.

Compared with countries such as the United States of America and many European countries where private ownership of the coastline is common, Australia is very fortunate to include the coastal strip as a community asset, notwithstanding the complicated and diverse governance structure that is necessarily embedded within it. There are 3 levels of government operating within the coastal marine arena, which, as Harry explains, has become more complex since the new law of the sea extended Australia’s ocean boundaries. Australia now owns, controls and manages an area of ocean much greater than its terrestrial greater area. According to Harry, this has made the governance and overall management structures for coastal reserves (both historically and currently) equally difficult and confusing.
7.4.2 Funding for education

In both Canada and Australia, the educators perceived government policies as framing education objectives in a way that enabled them to be construed as adjuncts, rather than an intrinsic element of the ensuing programs. As a result, there is frequently a lack of dedicated budget and a specific government agency charged with sole responsibility for public environmental education. The lack of coordination of education by governments leads to dissipation of the educational effort across multiple agencies. Consequently, the educational role in marine and coastal programs tends to ‘get lost’ or ‘fall between the gaps’. This issue, Geoff explains, necessitates that education be included in legislation and run parallel to government programs from the outset, that is, at the start of the design or planning process.

This is evidenced in Harry’s description of the National Oceans Office’s lack of recognition of the role of education in their work. Rather than incorporating education as a key component of the process from the outset, it is often overlooked, resulting in funding concerns:

And then in the sort of Federal territory I think it’s abysmal. The National Oceans Office has barely recognised the role of education in the work that they do. Certainly hasn’t set aside appropriate… they set aside small amounts of funds but after the fact rather than as part of the fact or before the fact, and I think that’s a disgrace. [S1HB: 328-9].

In Australia, there are a few education/interpretive programs that have resulted from government policies, and especially the Marine Protected Areas policy. This legislation, and its particular references and inclusions of educational objectives, gained approval from many of the educators. However, concerns regarding implementation of these objectives were raised. Harry, for instance, argued that, although education was cited within the legislation, it did not improve or ensure funding to develop and run educational or interpretive programs.

In terms of legislation the key thing I’d feature on in Victoria is now marine parks legislation and the way it’s done, and from a Marine Educator’s point of view it’s been done very well. But as I just said there is a little bit of recognition of the role of Marine Educators but getting funding to develop and run appropriate programs and so on and so forth is always a battle. It’s a huge battle. [S1HB: 325]
This is supported by Geoff’s comment that, although the marine policy strategy is designed to stand for 10 years, Parks Victoria was only funded for three years. This indicates a lack of government commitment.

This ongoing issue of lack of funding for educational programs is a constant challenge, despite the inclusion of these elements within legislation. From unpublished research that reviewed successful (and unsuccessful) community group applications for Coast Action/Coast Care funding (Kelly, 2001), it was concluded that, although community groups were actively encouraged to apply for funding to assist their coastal marine activities, these applications were not funded if they were labelled as educative or interpretive. This issue is highlighted by Harry when he points out:

> And going back to the coast itself in terms of… there are a lot of funding programs like Coast Action, but, again, education really has been neglected badly there. As I said earlier, you put in a few education types… well they say “no we won’t fund education”. Schools can apply to, you know, remove weeds or plant dunes or whatever else, but they can’t apply for education programs. [S1HB: 326-7]

The fear that education would be a victim of any budgetary shortage is not confined to Australian marine educators. Environmental education, globally, tends to be one of the elements that are perceived to be disposable when government funding drops. For example, Calvin noted that he was the sole trainer for the stewardship program, ‘Shore Keepers’, in British Columbia for a period of time as a result of government departmental budgetary shortfall to hire and maintain suitable education staff to operate the program effectively.

From the educators’ narratives, the perceived disposability of marine or environmental education is a result of three main elements, each of which are outlined below:

- The decision makers do not fully understand the long-term benefits of educating the public (this includes formal and informal education).

This may not only be a result of a lack of understanding of the power of education to change cultural understandings and behaviour, it could also be caused by the lack of time and funding that a government department has to instigate programs, particularly those with long-term objectives. The comparatively short duration of a political term of office, and
the resultant need for the incumbent government to be seen to achieve their political promises within this time period and framework, combined with the desire for newly appointed political parties to “sweep clean” and instigate their own programs and policies, and the inevitable length of time this requires, also has ramifications for the long-term benefits of education to be fully realized.

- Education has a long term objective not a quick fix therefore does not have measurable outcomes

For those that rely on quantitative measures (and most environmental managers are forced to do this), education can be seen as an amorphous component. This makes it very difficult if funding is limited and a decision needs to be made as to what should be funded and what can be left. As Geoff has pointed out:

So it’s a very internally competitive resourcing situation and for something that has got a long term objective like education that can’t show any immediate outcome… (with an exception of a Visitor’s Centre or something like… that) but something that can’t show any sort of ‘we’ve done this,’ it makes it much more difficult against performance indicators and things that can be shown to have happened. Weeds - ex number of species of weeds have been eradicated… we’ve sprayed this amount of that… You can say how many pamphlets you’ve done or how many people have hit the web sites and that sort of thing, but you can’t actually show you’ve made an attitude difference inside the sort of budgetary guidelines. [S2GW: 77-8]

- There is no group/individual driving education within the relevant government agencies that make the policy decisions.

As identified by some of the marine educators interviewed (particularly those in Australia), education is generally seen as an addition to the agencies’ core business. Inevitably, because there is generally no individual or group driving the need for education to be included within government policy and management decisions, it invariably does not get the consideration that is needed to fully benefit the environment. As long as education is considered a sub group inside a big agency then it will have to compete with everything else, including weeds, fire, government priorities and election cycles. As Harry explained:

In general terms, and again as we’ve been talking, Parks Vic with the marine parks planning process, you know, it’s been in there, but I can’t think of anyone that’s sort of been driving that. And to get funds to resource that sort of thing, is always a huge struggle. [S1HB: 318]
Unfortunately, funding is undoubtedly often short within government agencies and, for the reasons outlined above, education is a key component that is considered disposable when there is a funding shortfall. As Geoff describes the situation:

… the current method of operating agencies like Parks Victoria is that the money is basically about pretty close to fixed. And so when the Government says do this or do that it usually gives a little bit of extra money but the Agency has to find the rest and so something falls off the back of the truck. (S2GW: 76).

An ethos of working around the system
A certain amount of frustration exists for the marine educators in regards to the lack of dedicated funding and responsibility for marine and coastal education. Susan indicated that her frustration was as a result of living in an area that had ‘an incredible coastline’ that she thought should be part of a prescribed curriculum. Yet, as she described it, marine and coastal education is seen ‘in most people’s eyes’ as something that is frivolous or an add-on, fun sort of thing to do, but really not that important.

Although many of the marine educators have expressed frustration with the government systems, the lack of recognition of the value and role of education, and the funding and resource constraints they constantly confront, they invariably developed ways to work around the system. According to Susan, Environment Canada, offers recreational visitors to national parks educative and interpretive opportunities to learn about the natural areas they are visiting. By walking through visitor centres or by taking part in an interpretive program (in a non-formal setting), people are able to gain some understanding of the local ecosystem. However, as Susan explained, although the Federal government wants people to understand and enjoy natural (in this case, marine) areas, “because we’re spending our tax dollars on them, I guess” (Staniforth, interview transcript), there is no legislation that provides for marine education. Although, this carries with it substantial drawbacks, Susan argued that the situation has created an ethos of working around the system, rather than with it:

But it’s hard because there aren’t the avenues embedded in policies or laws or educational amendments to anything that say that marine ed has to be part of it. So you have to be sort of insidious and work on the fringes on that. Get it in where you can. (S2SS: 141).
Calvin also described his feelings of disgust and the belief that he didn’t have time for the government to act on incorporating education into policies. He went on to explain that this was why many educators simply undertook education on their own initiative.

…I haven’t got time for them to figure it out. So that’s why a lot of us just do all this stuff on our own, and find alliances where we can, because we know it’s not going to come so we’re just creating all these projects on our own. Cause there’s no coordination from the Department of Education at all. (S1CP: 103).

Having worked in marine and coastal education in both countries, Patrick was able to compare the two systems and provide an insider insight that was not available to the other marine educators. As such, Patrick explained how the education system in Canada is set up so that it can’t have influence in environmental spheres. Although the same is not the case in Australia, and historically the Education Department did have input into environmental agencies, they now have very little influence in environmental decision making. Nevertheless, Patrick indicated that he was very proud of what Australia had achieved by comparison and expressed the frustration he felt at the cultural differences and lack of taking opportunities that existed in Canada.

…things are so far back in time here, in terms of the progress that’s to be made. In some ways there’s a lot of opportunity but in other ways, culturally, there’s just a go-slow mindset, a ‘don’t offend’ mindset that’s really strong… so that means if anything comes down it has to do so with consensus. Very little comes down as a result - and that’s a big challenge. So I find it occasionally frustrating. That also means that when you achieve something that actually happens then you know that it’s a significant step. (S1PO’C: 201-202).

7.4.3 Education and protection

Although the educators considered the current marine legislation to be valuable (if, at times, lacking power and resources), there were elements that they argued were being overlooked. This section investigates what the educators described as key aspects of the marine environment that needed legislative protection, and in each case how they articulated the role of education.

There were a number of different aspects of the coastal marine environments for which, the marine educators felt, needed to have legislated protection. This extended from legislation to reduce stock depletion; to protect species that fall between the governance gaps; to ensuring representation of ecosystems; to providing opportunities for education and connection with these unique environments. Overall, however, they saw the key need
for legislation to be educative if it was to be effective in garnering community support, understanding and participation.

Susan, for example, argued that stronger legislation was needed around anything to do with the coastline, in particular governance regarding home ownership, businesses or industry related to the coast. There was a need for parks and protected areas to be established throughout the coastal marine environments, similar to the extent that they exist within the land-based environment. She described the need for greater accessibility, education and interpretation of those marine places, whether it was through a semi-virtual medium (that is, movies and videos available of deep sea environments where only a few people can actually visit), or through supporting centres like the marine ecology station, that provide opportunities for children and adults alike to have a hands on experience with the organisms that live in those environments.

So I guess much stronger information and education… Yes, most definitely. I think that’s the bottom line. If we’re going to protect it and understand it and, you know, conserve it you have to experience it before that occurs. (S1SS: 161-163).

Geoff also believed that it was important to legislate for species that would otherwise be omitted from protection. He specifically discussed the issue that inter-tidal invertebrates aren’t protected unless they are located in a marine protected area of some sort. Geoff described situations were an organism would be (theoretically) protected if it was “lucky enough” to be in a marine national park and marine sanctuary; or if it happened to be located on the edge of a terrestrial national park as these are declared to low water mark; or if the organism was situated in a fisheries management or wildlife management cooperative area; or in a habitat protection zone. However, if the invertebrate organism is not located within any of these “protected” areas, then it is not necessarily covered by any form of protective legislation.

So it’s quite a complex system which essentially is really only about whether or not you’re inside a protected area. For whatever piece of legislation printed. So there’s nothing that’s actually covering them as organisms. Unlike if they were terrestrial organisms where they’d be protected under the Flora and Fauna Guarantee Act or the Wildlife Act or you know… so their essentially protected as native species. (S2GW: 108).
Over-fishing was another concern that the educators listed as requiring both stronger legislation and education. Calvin argued that a long-term moratorium on fishing “in lots of areas” was needed to allow the opportunity for stock to recuperate. He described how many species had been fished or gathered to near extinction by commercial groups and that now time was needed to allow these species to recover from such intensive harvesting. In much the same way, Rick discussed how legislating for protected areas that were off limits to fisheries were important for sustaining fisheries around those areas. He went on to describe how these areas would also provide the opportunity to develop good community based education about the value of having undisturbed marine environments and their importance for supporting sustainable local industry outside that environment. Rick asserted that this was also a good way to help people understand the real importance of these protected areas for the fishing industry as well as aquatic and marine species, particularly those that were limited or non-migratory species. In this way, he saw education as the key to protection of these environments and their inhabitants.

Patrick also saw the need for further legislation to ensure representative distribution and to assist in establishing links in people’s minds between the land and the sea. He spoke of three levels:

a) representing distributions – the need to look at distributions of species to ensure representative habitat was protected, for example, the habitat of hexactinellid sponges;

b) cultural ecological mix – looking at some of the values of these environments as the birth places of culture, for example, in terms of resource utilization, the completeness of resource utilization, in terms of rotational management systems and herring harvesting, and so on.; and

c) land-sea connections – the need for existing marine parks to provide people with an understanding of the connection between land and the marine environment, a connection he describes as not being well understood.

Patrick described how using the example of salmon to connect inland areas with the sea would assist in this process of assisting people to make links between the land and the coastal marine environments:
And to that extent we’ve got some very strong messages about the connectivity between land and sea because that is something that is totally missing. That connection is not understood well. So using salmon as the already loved icon to the mid-west would go a long way as a strategic message, and that sort of land/sea connection by creating marine protected areas inland. (S1PO‘C: 211-212).

Thus Patrick, like the other marine educators, saw education as being a critical aspect of protective legislation. Indeed, there is an inherent duality embedded in this concept: education helps in the protection of environments, and protective legislation can be framed to be educative.

7.5 Key points emerging from the analysis

This section provides a summary of the key points which emerged from my analysis of the interviews that relates to the educators’ role as mediators, and as activists, in each of these relationships.

7.5.1 Community – Marine Educators – Education Programs

As I argued in Chapter 6, it is clear that the aesthetic framework is a powerful lens through which to view the educators’ commitments and actions encompassing community and education. I have argued that there are three key pedagogical elements that underpin how they framed their educational practice, and that are informed by their aesthetic understandings. First, their own aesthetic commitments were based in a history of experience of the environment, and this was expressed in a commitment to a pedagogy that was fundamentally experiential, through immersing learners in marine environments. Second, their deep-seated personal sense of rightfully belonging in the natural world, informed a placed based pedagogy. Third, their strong belief in curiosity and the need to connect drove a pedagogy based around exploration and discovery.

The educators talked of a generational change that has resulted in the need for technological tools to be used in an environmental education programs. These tools were described as particularly enabling in a marine environment, allowing the community access to virtual experience of the oceanic depths.
This aesthetic frame for understanding both the educators' commitments, values, and pedagogy, provides a deeper framing of the traditional environmental education problem of how to conceive of the relationships between knowledge, attitudes and behaviour.

7.5.2 Policy – Marine Educators – Community
As a result of the moves internationally towards involving the community in the policy decision making process, the marine educators play a significant role both as mediators and activists in relations between community and government agencies. As a result, they strongly advocated for the need for a variety of community voices to be represented in policy. They also expressed concern, based on their extensive experience in this mediatory role, at the lack of community voice in policy, and the marginalization of communities due to the diversity of stakeholder agendas and the dominance of particular vested interests. They saw an important aspect of their role as enhancing opportunities for the empowerment of local communities to contribute to policy and strategy decision-making.

The marine educators in Australia, compared with their Canadian counterparts, had been able to be influential in the creation and implementation of marine park legislation. This provided, in Australia, a clearly articulated role for community representation which went beyond the traditional framing of community stewardship.

7.5.3 Education Programs – Marine Educators – Policy
The marine educators spoke of the need for a collaborative integrated approach to coastal marine management that was based on maintaining public awareness, involvement and commitment in participatory decision-making. They saw education as being a key element in this, and had been active in advocating for an increased role for education in marine policy framing.

Until recently, few governance documents have incorporated directly stated education objectives, but this was slowly increasing internationally, with Australia one of the countries at the forefront. In Canada, there is little acknowledgement of the role of education in policy implementation, and in Australia, even when education is enshrined in legislation, coordination and resourcing is problematic. The Canadian marine educators in particular, had developed an ethos of ‘working around the system’ as a result.
In summary, it was clear from this analysis that marine educators have a complex relationship with the three constructs (community – policy – education) and that this relationship is informed by their aesthetic understandings. Their activism is driven by a dual commitment to a) empowering the community to be involved in policy decision making, and b) influencing government to conserve the marine environment; include the community in the decision making process; and incorporate education into government policy and legislation. Their commitments and beliefs as mediators / activists are underpinned by an aesthetic understanding of the world and their place within it.

7.6 Chapter Summary

In this chapter I have worked with the constructs of community, education and policy as representing the key elements around which the marine educators play out their role. Their narratives provide a perspective of marine experts of this aspect of marine education and as activists in the multiple roles they play. I have also discussed the drivers for their roles in these areas.

The chapter has explored the role of the educators as mediators between each of these aspects, and has been structured around the three relationship pairs:

- Community - education
- Policy – community
- Education - policy

Finally, the marine educators described key aspects of marine protection legislative needs, and articulated the role of education as being a critical aspect of protective legislation.

In Chapter 8 I endeavour to bring the marine educators’ stories together… and to an end. This final chapter also provides the opportunity to reflect on the study, the methodology and what has been learnt - both from the research and personally.
Chapter 8

Land Ho!

- Conclusions and implications

I pick up my sisal bag.
The sand slips softly under my feet.
The time for reflection is almost over.
Anne Morrow Lindbergh, 1977

Introduction

Over the years, there has been increased international recognition of the need to involve the public in natural resource management, particularly in decision making, maintenance, monitoring, and education programs. With this global shift towards environmental stewardship, marine educators have quickly emerged as a significant force in framing processes to encourage, educate and engage community members in these expanding stakeholder roles. As has been shown in this thesis, marine educators have become influential in encouraging community action through stewardship and educational programs, participatory management actions, and activism.

As a group, marine educators are readily identifiable and influential drivers of the process of change for community participatory involvement in resource management. They are also influential in framing the focus of marine education (and through this interpreting and influencing government directives). They are activists, educators, informants and commentators who play an important mediation role in the government agency – community relationship link. As such, they are in a strong position to both influence and interpret public attitudes, policy development and practice, and, as a result, drive changes in both practice and policy.

The mediatory and activist roles the marine educators play in the relations between government agencies and community groups, evidenced a shared understanding of the trends and critical challenges that confronted both marine education and community
involvement in policy making and implementation. The marginalisation or lack of community voice in policy due to the diversity of agendas and dominance of particular vested interests was central to this perspective and informed their actions in creating opportunities to empower community groups for change.

Because the marine educators are critical agents of change (more than they or others acknowledge), it was important to know what understandings drove their passion, enthusiasm and values, and correspondingly framed their actions. By listening to and analysing their narratives it became clear that their understandings and way of seeing the world is grounded in an aesthetic framework.

Due to the public nature of the marine environment and the variety of users (and uses) that are reliant upon it, governments (and their agencies) have been increasingly acknowledging and actively encouraging the importance of public participation in management decisions and implementation. In doing so, a reversal of the historical trend of community inaction, and subsequent disenfranchisement, is taking place. Much research has already been undertaken on how best to effectively involve community groups in environmental management. In addition there is a body of literature that shows that voluntary groups have power to drive change in the marine environment and in policy making and implementation. As discussed above, these interactions and relationships between government and community groups is empowered, mediated and influenced by marine educators. In this way, they act as a lynchpin between community groups and the government agencies responsible for marine environmental management.

Legislative and governance infrastructure that existed within the two countries, (and the cultural understandings of the people that lived there), provided variations in the topography in which the marine educators worked. The educators' personal history of experiences and the resultant impact this had on their understanding and value system informed their roles and the way in which they performed them. In Chapter 4, I have investigated the legislation and policy context that frames the marine educators' roles within each country and state or province, and explored how education is represented within these documents. In Chapter 5, I introduced the marine educators and, in Chapter 6, through their own stories, I reflected on their past experiences that have informed their
aesthetic understanding and grounded their environmental and pedagogical commitment. In Chapter 7, I investigated how the marine educators brought this aesthetic framing to the role they played as mediators (and radiators) in their relationships between community, policy and education.

The logic used in the framing of this dissertation has been to weave the three questions into and through the various chapters, thereby using each preceding chapter to inform the others. In this chapter, I bring together the findings that have emerged from the study to address the three questions:

1. What drives the marine educators’ practice and where does this come from?
2. What is the relationship between marine educators, the community, education and government policy?
3. What can we learn about marine education from the marine educators?

This chapter concludes with implications for the research and my personal reflections of the study.

8.1 Responding to the research questions

The key ideas that have emerged from the marine educators’ narratives and have been investigated in Chapters 4 to 7 have enabled each of the questions to be addressed, and conclusions drawn.

1. What drives the Marine Educators’ practice and where does this come from?

During the course of this research, I became aware of certain commonalities that emerged from the respective educator’s narrative. For instance, the marine educators’ stories in each case reflect a history of experiences that have given rise to a fascination with the natural world and a life-long openness to learning. They shared with me fond memories of coastal or aquatic expeditions that ultimately led to, and informed, their sense of identity and value systems. These experiences (and how the individual marine educators responded to them) gave rise to an understanding of the world that was dual in nature. This duality was evidenced in their strong commitment to the conservation of the marine
environment that led them to make significant personal contributions to the field, and in their deep-seated belief in education as an effective tool in sharing this understanding with others.

Looking at the marine educators’ narratives through the lens of aesthetic understanding frames this duality, giving insight into how their experiences were both transformative and compelling. This aesthetic understanding informs their world views, their pedagogy, their sense of identity and their connections to the environment and other people. In doing so, it underpins and informs the passion and connection the marine educators’ exhibit for both their work as educators, and the marine environment. It is this aesthetic understanding and appreciation of the world that inspires their enthusiasm and drives the marine educators’ practice, both as environmentalists and as educators.

This transformative component of aesthetic understanding has been previously written about in terms of its dual nature in driving both personal response and commitment, and pedagogy (see, for example, Darby, 2009). Aesthetic understanding creates an educative impulse that impels the educators in their epistemological and pedagogical undertakings. The marine educators’ passion and sense of connection to the marine environment centres and grounds their strong belief and need to empower others to form similar connections. Although they described having knowledge of and about the marine environment as vital, their comments reflect that it is through action that real understanding occurs and connections are made. Their belief in hands-on and experiential learning is evidence of this conviction. By introducing people to the marine environment through experiential and hands on practices, the marine educators attempt to enable the learners to form these connections. By connecting, a sense of ownership or belonging is inspired, thereby seeding feelings of protection towards these areas.

In this thesis I argue that by using an aesthetic lens to view the links between knowledge, attitude and behavioural change, we can see that there is a spiral evident in the marine educators’ stories through which these three elements inform each other. This way of thinking about the educators’ environmental response (as evidenced by their practices) provides a fresh and powerful way of linking knowledge, attitudes and behaviour, an issue which has been the subject of debate in environmental education for many years.
The complex relationships the marine educators have in their work, particularly (in this study) with respect to the three constructs of community, policy, and education, are also informed by their aesthetic understandings. In these relationships they play a number of roles: those of mediator, advocate and activist. These roles are framed by the cultural, sociological and political context within which they work. An obvious feature of their work is their passion, and occasionally feelings of frustration. Central to this is their sense of self and connection (or belonging) to the world that enables the sustained commitment and drive to influence others' perceptions and understandings (and through this, actions) that bring about change.

2. What is the relationship between marine educators, the community, education, and government policy?

As governance of the marine environment becomes more directed towards a collaborative integrated approach, stakeholder involvement is being recognised as an important component of successful development and implementation of marine planning. The consequent interrelationship of community groups and government agencies can become quite complex and sometimes conflicting, yet it is within this web that the marine educators play out their roles as mediators, advocates and activists.

In this thesis, I argue that there are three key constructs around which the marine educators work: community, education and government policy. Between each of these respective pairs the marine educators play a key role that frames the relationships they have with, and between, these elements.

Community-marine educators-education

Education has frequently been identified as an effective and reliable way to increase public awareness of environmental issues and to facilitate attitudinal and behavioural change. The process of community inclusion in educational and stewardship activities in and around the coastal marine environments is generally defined by marine educators. Accordingly, marine educators have become influential in both framing the focus of community marine education activities and in encouraging community action through them.
The marine educators’ pedagogical practices are grounded and framed by their personal (and shared) aesthetic values and understandings. This inspires and drives their need to encourage and enable community members to experience and connect with (particularly local) natural marine environments. The formation of these connections can lead the individual to develop an in-depth understanding and appreciation of the area that is both transformative and aesthetic in nature. By working closely with community groups, the marine educators are in a position to both influence and transform community understanding and behaviour. They are active in influencing the community through their pedagogical commitments, and actively mediate community attitudes to the environment through their educative innovations. The influential and transformative nature of the educators’ interactions with the community evidence and frame their activist attitudes and values, both to the environment and to the engagement of the public.

**Policy-marine educators-community**

Over time, the marine educators have emerged as a mediating link between the public and government agencies. By their active involvement in the political process, and through their roles in educating, informing, supporting, and supplying educational experiences and expertise to community groups (as needed), marine educators have driven the process of stewardship from both the government and the community perspective. In doing so, they have become both advocates for the community, (ensuring that the public have a voice and that it is heard clearly), and activists in shaping and leading this relationship. There is a duality to their role as activists in that, they influence government policy and legislation through their interactions with government agencies; and they empower the community (through educational programs and group support) to voice their concerns and to lobby the land managers and policy makers for local change. In this way, they transform both down (to the community) and up (to influence policy). In doing so, they are in the business of creating a next generation of activists.

In summary, the marine educators play a significant role in both influencing government policy and in encouraging community involvement (and voice) in policy-making and implementation. Although the marine educators have a shared understanding that is
transnational, their roles and relationships play out differently in each country because of the cultural and legal backgrounds and understandings that frame their work.

**Education-marine educators-policy**

The international push for a collaborative integrated approach to coastal marine management hinges on maintaining public awareness, involvement and commitment in participatory decision-making. As education is a key element within this, the marine educators have been actively advocating for an increased role for education within the marine policy framework.

Since stewardship programs generally sit within government departments, many of the marine educators have been able to establish an influential role in policy development. Even those that are external to government have been influential in a variety of ways, some of which are open to the general populace, while others result from their strong activist leanings (that is, sowing the seeds for change in corridor conversations with politicians and in other serendipitous situations). As such, they have been influential in framing the focus of community marine education and in influencing the policy making process. Through their educational programs, they are able to present and interpret the governments' management strategies to the community and to educate and encourage the local populace in petitioning the government in order to influence and promote change.

Through the educational programs the marine educators design and deliver, they interpret government directives, including policies, for the local community.

In addition, the marine educators frame the nature of the education within policy. It is only comparatively recently, for example, that governance documents have moved from being deficient in any mention of education to having clear educational objectives. This paradigmatic shift (although perhaps still in its embryonic stage, given the lack of support and resources to effectively achieve them) was seeded and driven by key marine educators, thereby evidencing their proclivity to activism.
3. **What can we learn about marine education from the marine educators?**

By undertaking this research, insight was gained into aspects of marine education from the actions, the adopted roles and the personal perspective of these marine educators as recognised, and long established, experts in the field. It was clear from the educators’ stories that education was seen to play an important role in conservation management and habitat protection, particularly in relation to raising the public’s awareness of marine environmental issues and engaging community involvement in the management process.

With the international push towards a collaborative integrated approach to coastal marine management, the role of education (and therefore the marine educators) becomes pivotal in maintaining public awareness, involvement and commitment in both policy development and implementation.

Although education has been identified as an essential element to public involvement (and ultimate behavioural change), until recently it has not been recognised as important in legislation. From interviews with the marine educators it became evident that few governance documents clearly outline education objectives (particularly in British Columbia), or, if it is stated, do not apportion appropriate and ongoing resourcing (including funding and support) for educational programs (this incorporates citizenship or stewardship programs).

In addition, the marine educators were strongly of the view that environmental education (particularly, regarding marine education) needed to be included into the mainstream curriculum. In doing so, they believed that a more informed and aware public would emerge that would have a greater understanding and appreciation of the connections between catchment and ocean, and possess a better insight into the effects of their actions.

There is a need to expand people’s perceptions of the coast and promote a wider understanding that the marine environment is connected to both hinterland catchment areas and to deep oceanic realms. By providing the public with a deeper understanding of the breadth of these relationships, awareness of the impact of their actions as a resource user, and the consequences of these actions on the marine ecosystem, are created.
Being Commonwealth countries, both Australia and Canada have a similar governance infrastructure, and, at a superficial level, a similar culture. However, the way in which coastal marine environments are utilised and perceived differs between countries, leading to different community and government agency attitudes and behaviours towards these environments. In Australia, for instance, the climate and geography makes the coastal environments more conducive to recreational uses, whereas the topography and cooler temperatures in Canada (particularly British Columbia) does not invite the same degree of intimate and intense recreational pursuits. Consequently, the degree to which these habitats are protected and managed varies, as is reflected in the respective legislation and policy documents existing in each country. Thus, the context in which the marine educators operate within each country is similar, yet varies substantially.

8.2 Significance of the thesis

This thesis makes a significant and original contribution to the academic literature in the areas of environmental education research and marine policy development and practice (specifically on the contributions and role of marine educators in mediating public policy).

This thesis has generated new and important insights into a group of people whose significant contributions to the development, communication and interpretation of government policies, (as well as their influence on and empowerment of community groups through their educational practices), has thus far gone unacknowledged. Building a narrative of the experiences of marine educators over time has made possible a recognition and understanding of the pivotal (and dual) role they play in actively influencing both policy and community, and provided an opportunity to discern how this role has taken many of the interviewees from the periphery to the centre of policy development. By unpacking the links between policy and public, some of the roles of this group of key players as both advocates and activists have been recognised.

This study has shown how marine educators constitute a class of environmental agents who are advocates for community voice; mediators in the relations between government agencies and community groups; and activists in both influencing policy and legislation development, and in educating and influencing community understandings and actions. In
doing so, it has shown that they are, therefore, important catalysts (and drivers) for change.

By examining and understanding the individual practice of marine educators as mediators between policy, community and educational practice I have been able to explore the multiple roles that marine educators play in involving the public in natural marine environment management and in policy development and implementation. By investigating what underpins their understandings and drives their practice, I was able to ascertain the elements that frame their actions in this mediatory role.

By using an aesthetic lens to view the links between beliefs and practices of marine educators the thesis has made a significant contribution to identifying the drivers of change in people’s perceptions and understandings of the marine environment. The construct of aesthetic understanding offers a fresh perspective on the longstanding interest of environmental educators in the relationships between knowledge, attitude and behavioural change. Ultimately then, the nature of the aesthetic commitments of these marine educators informs our understandings of the key elements of individuals’ awareness, and connections to the environment, and to what should be the core focus of an environmental education.

8.3 Implications

This study has investigated an area of environmental education that is of current interest globally. It is also an area of international significance that will continue to be so into the future as global issues of climate change, tidal level increase, marine stock depletion, and coastal marine industry collapse becomes more prevalent.

The following implications arise from research that begs action and further investigation:

1. **The shift away from a scientific instrumental approach to marine education allows for a more integrated, value driven approach to be adopted that encourages the formation of place-based connections and strong stewardship impulses. The role of this shift in approach in inspiring activist behaviour should be investigated further.**
The call for stewardship, the encouragement of place-based connections, and the drive to establish a sense of community ownership of natural environments creates a novel situation, one that, I argue, is ideally suited to an educative framework informed by, and grounded in, aesthetics and aesthetic understanding. By recognising the values that connect people with the marine environment and enabling these connections to be made, a sense of place and belonging or ownership develops, that informs how the individual acts within and to the environment and to any perceived threats. By linking the sense of self to the marine environment through positive personal experiences, an extension of an individual’s self-identity occurs, becoming inclusive of that environment. With reflection, this occurrence transforms and empowers the individual to seek out similar experiences, thereby making firmer connections and developing a shared sense of place that is unattainable in a more scientific instrumental approach to either education or the environment.

2. Marine educators are vital mediators in the relationship between government agencies responsible for marine environments and the community. Therefore, how they can best be included and involved in marine policy and strategy groups from the earliest phase needs to be explored.

Marine educators are an essential lynchpin in a government agency – community group link. This role is both mediating and radiating insofar as the marine educators influence the community through the way they interpret policy to inform the educational and interpretive programs they design and deliver, and, conversely, influence government policies and strategies both directly and indirectly. This important mediatory role is both enabled and restricted by the cultural-historic domain within which they work and constrained by the governance infrastructure. With the move towards the establishment of direct government-community links (based on community-use systems) marine educators need to be utilised to ensure its effective operation. By including marine educators in policy or strategic planning and management from the earliest outset, strategies for educating the community and inspiring their involvement could be established and implemented from an early phase, thereby ensuring their effectiveness.
3. There is a need to embed education within legislation including resourcing, as an important aspect of conservation. The nexus between conservation and education needs to be acknowledged.

To effectively protect the marine environment, the role of education and how it is framed and represented within legislation and policy is critical. The fact that it is very under-resourced and narrowly conceived in both its role and value by funding bodies and policy makers (particularly as it cannot adequately be evaluated economically) creates difficulties in engaging the public effectively in management issues. Creating a demand for education programs within policy would ensure that education was not an add-on or an afterthought, and would go a long way towards safeguarding that adequate resourcing and funding would be made available into the future. Incorporating definite, clear and achievable educational objectives within both environmental and educational legislation (and the resultant policy documents) would ensure that marine education did not “fall between the gaps” in government departments.

4. The importance and potential power of the role of marine educators needs to be recognised and supported.

Given the important and multiple roles played by these marine educators there is a need to sustain such people within the policy framework as critical mediators between policy, community and education. Their role as activists, while perhaps uncomfortable in some ways, is extremely important for informing policy.

5. Given the increasing focus on stewardship, there is a need to focus on more substantive roles for the community and reconceptualise community education to allow community members an active role in policy interpretation and framing. In doing so, a there would be a potential reduction in the number of community groups (and marine educators) that experience the element of ‘burn-out’ due to ongoing difficulties and frustrations resulting from lack of acknowledgement and under-resourcing.
6. **The nature of community education can be powerfully informed by an aesthetic framework**

   Empowering community members to form a connection with their local marine environments has the potential to inspire feelings of ‘belonging’ or ownership. It is these feelings or perceptions of place-based connections that have been shown to instigate stewardship actions and a sense of ownership and protection over marine environments. These connections to the environment are grounded in place-based values and ethics and are informed by an aesthetic understanding. Thus, we need to use aesthetic understanding to frame community education.

8.4 **Personal Reflection**

   As with all studies though, now is the time to reflect on the research that has been undertaken here, to take a step back and objectively (well, as close to objectivity as a qualitative study allows) review the methodology and personal lessons learnt. This section therefore is dedicated to reflecting on the study and, in doing so, drawing together the stories that have been told.

   Researching and writing this dissertation has taken me on a quite substantial voyage. At times I have felt that I was on the QE2, at others a deckhand moving deckchairs on The Titanic and steaming full ahead for the unknown. Either way it has provided the opportunity for growth both as a researcher and as an academic. Through exploring the marine educators’ narratives and the underlying values that informed their views, I have also been able to reflect on my own beliefs and values and to come to more of an understanding of my own story.

   I found it interesting that the interviewees identified me as a “story kinda person” (Kool, interview transcript) and as someone who likes to hear stories (O’Callaghan, interview transcript). I believe it was this perception that encouraged the marine educators to open up and tell me stories of their lives and their experiences and to link these stories back into what they were trying to tell me in relation to the question I had asked. Although there were times when I wondered if this was to the detriment of the response to the question in some cases as we wended our way through the stories, I think the mode of storytelling to address the questions enabled the interviewees to formulate in their own minds what it was...
they were trying to say. These people are, after all, story tellers and ‘story kinda people’, themselves.

The stories that were told throughout the interviews gave me a great deal more insight into the individual and their belief system than the question itself actually invited. For example, it became obvious that Gloria Snively had a passionate belief in incorporating First Nations peoples and views into educational programs; Rick Kool had a strong sense of place; and Patrick O’Callaghan had a unique and well developed sense of adventure and curiosity.

This method of data production also gave the interviewees the opportunity to reflect and explore how their experiences have informed their beliefs, and to validate them at some level by voicing them. At times I felt that I was a sounding board as the marine educators interviewed thought about their responses. If I was, this may have helped to allow all concerned to walk away feeling satisfied with the interview and would certainly explain why all the interviews went longer than the allocated time (which was quite generous anyway). Although I constantly confirmed with the interviewee that we were overtime and asked if they wanted to stop, few (if any) actually did, and then they were interested in continuing the interview again at a later date. After all, it takes a long time to tell a good story.

Overall, throughout this voyage I have discovered a lot about myself. For instance, I have discovered that I have a great faith in education. I have faith that marine education creates positive change, although I may not see it in my time. I strongly believe that marine educators are catalysts for change, activists and innovators, and passionate in their personal beliefs and understandings. Most of all I have gained an understanding of the world and my role within it that is both unifying of my beliefs and values, and transformative.

I am a romantic. I am drawn to environmental education and to the beauty of nature. I love introducing people to the natural world and to the beauty of the organisms that live there. It is always a wonder when you see people learn to understand and love these areas as well. I believe this passion and recognition of the beauty of the nature makes one a romantic.
I have also learnt that I have a strong spirituality. I believe strongly and can see and understand the connections and links between humanity and nature, between all living things. This vision extends into spirituality as Kovan and Dirkx inform us, “there is a spiritual element to what we do” (Kovan and Dirkx, 2003, p. 105).

The longitudinal element of this study has enabled me to view the field of marine conservation and education over time. As an objective observer and an informed commentator, I have witnessed the marine environment, and the issues and concerns associated with these ecosystems, gain political ground both nationally and internationally. With this shift has come a substantial move to involve community groups in initially ‘friends’ groups (where voluntary labour was perhaps the limits of individual involvement), to being involved in stewardship groups, and, ultimately, to answering calls for participating in policy and management decision-making and implementation.

This shift in recognising the need to involve community groups at a managerial and decision-making level has been reflected in the language used in legislative and governance documents. When I initially began this study, I spoke to a number of government representatives and marine educators about the role of education within legislation and what I perceived was a lack of any mention of education. At the time, it was explained to me that, although there was no reference to education, it was assumed, and therefore embedded within the documents. However, this evolved with time, and, both nationally and internationally, policy documents began to reflect a need to “increase public awareness” of marine environmental issues and concerns.

Today, legislation and policy recognises the important role that community groups and education plays, and outlines clear community participatory and educational objectives. Unfortunately, these are the objectives that are hardest for government agencies to implement and, therefore, tend to be the ones that are least successful. There is still a long way to go for the critical and inclusive role of education to be realised in both governance and its implementation. I argue that it may even depend upon a shift in thinking on behalf of both government agencies and policy makers regarding cross-departmental responsibility for environmental education, leading to a structure whereby there is shared accountability or clear leadership.
During the course of the study, I have had the great fortune to talk to the people I interviewed on several occasions. As a result, and due to the nature of the questions and their responses, I feel that I have come to know these people. Because of the manner in which they responded and the context from which they were talking, I realised that it wasn’t possible to give them anonymity in the study. The field of marine education is not large, and leaders and activists within this industry are readily recognisable, thus the interviewees kindly allowed me to use their true names. I felt (and am) indebted to the marine educators for the time these incredibly busy people gave me, the stories they shared with me, and the interest and support they offered over an extended period of time. Above all, I am grateful for the opportunity to talk with and listen to these incredibly inspirational and passionate individuals and explore, with them, the world from their perspective.
Appendices

Flotsam and Jetsam

“‘Believe me, my young friend,
there is nothing – absolutely
nothing – half so much worth
doing as simply messing about in
boats. Simply messing,’ he went
on dreamily: ‘messing – about – in
– boats;’”

Kenneth Grahame
(1983, p. 11)

Appendix 1: Interview Protocol for Australian Marine Educators

1. How would you describe marine and coastal education? How do you see the relationship between them?

2. What do you think Marine/coastal education is trying to achieve?

3. How are you trying to achieve it?

4. Can you tell me a little bit about yourself in terms of your academic training and how you came to be involved in marine and/or coastal education?

5. How would you describe your current role?

6. Do you feel that your personal marine and coastal experiences inform the educational programs you design or deliver?

7. What or who do you think influenced the field of marine and/or coastal education?

8. And who (or what) do you see as most influencing you in the field?
9. How have they (or it) influenced you? That is is there an incident in your life that might have influenced you or your work?

10. What do you believe are your most significant contributions to the field?

11. How do you see your ideas about marine or coastal education relating to those of others who are active in the field?

12. How do you see the relationship between knowledge, attitudes and action in within marine and environmental education?

13. How do you put this into practice? That is how do you apply this philosophy to your work?

14. Can you give me examples of this?

15. When you are designing a program, where do you start from? That is do you start with knowledge? Do you start with facts? Do you get the participants involved in action programs? Or do you confront their attitudes and try to change those?

16. Are there any governmental policies that influence the marine and/or coastal education programs that you design or are involved with? If so, what influence do they have? How do you feel about this? That is how do you feel about the influence that non educators have had on the direction of marine and/or coastal education?

17. What are the key marine policies?

18. Who do you see as having influence on governmental marine and/or coastal policies? Who would you like to see influencing these policies?

19. What role does education have in these policies? That is are they an add on? An integral part? Are they there as public relations policy?

20. In Australia, we have had legislation that sets aside areas for Marine Parks. What do you think of this legislation?

21. What are the programs being implemented under the policies?

22. Do you contribute to the education programs that may come from this?

23. Did you contribute in any way to the Marine Parks legislation? If so, what role (if any) did you play?
24. What other government (both Federal and State) legislation, strategies or plans relate to the Victorian marine and coastal environment? What protection for the marine environment would you like to see legislated?

25. How and how well do you think Government agencies and local communities communicate with one another concerning issues of marine and coastal environments in Victoria? In Australia?

26. From your experience how much input have local communities had in the development of policies and strategies related to marine and coastal environments? How could opportunities for contributions by local communities be encouraged/improved?

27. Do you see children responding to the same things that might have interested you as a child or do you find yourself designing programs that are different to your own past experiences? If so, what changes do you feel necessary to incorporate into your programs?

28. What do you think children/adults are looking for in a marine and coastal education program today?

29. Have there been any significant shifts in marine or coastal education over the last ten years?

30. What effective coastal and marine community education programs in Victoria are you aware of, but not necessarily participating in?

31. Do you know of any marine or coastal education programs that have been evaluated? How could I get a copy of the evaluation reports?

32. What do you see as the greatest challenge(s) facing marine educators over the next 5 years? (For example improving policy? improving communication? improving education practice/programs?)
Appendix 2: Interview Protocol for Canadian Marine Educators

1. How would you describe marine and coastal education? How do you see the relationship between them?

2. Can you tell me a little bit about yourself in terms of your academic training and how you came to be involved in marine and/or coastal education?

3. How would you describe your current role?

4. Do you feel that your personal marine and coastal experiences inform the educational programs you design or deliver?

5. What or who do you think influenced the field of marine and/or coastal education?

6. And who (or what) do you see as most influencing you in the field?

7. How have they (or it) influenced you? That is is there an incident in your life that might have influenced you or your work?

8. What do you believe are your most significant contributions to the field?

9. How do you see your ideas about marine or coastal education relating to those of others who are active in the field?

10. Are there any governmental policies that influence the marine and/or coastal education programs that you design or are involved with? If so, what influence do they have? How do you feel about this? That is how do you feel about the influence that non educators have had on the direction of marine and/or coastal education?

11. Who do you see as having influence on governmental marine and/or coastal policies? Who would you like to see influencing these policies?

12. What role does education have in these policies?

13. In Australia, we have had legislation that sets aside areas for Marine Parks. What government legislation, strategies or plans relate to the BC marine and coastal environment? What
protection for the marine environment would you like to see legislated?

14. How and how well do you think Government agencies and local communities communicate with one another concerning issues of marine and coastal environments in BC?

15. From your experience how much input have local communities had in the development of policies and strategies related to marine and coastal environments? How could opportunities for contributions by local communities be encouraged/improved?

16. Do you see children responding to the same things that might have interested you as a child or do you find yourself designing programs that are different to your own past experiences? If so, what changes do you feel necessary to incorporate into your programs?

17. What do you think children/adults are looking for in a marine and coastal education program today?

18. Have there been any significant shifts in marine or coastal education over the last ten years?

19. What effective coastal and marine community education programs in BC are you aware of, but not necessarily participating in?

20. Do you know of any marine or coastal education programs that have been evaluated? How could I get a copy of the evaluation reports?

21. What do you see as the greatest challenge(s) facing marine educators over the next 5 years? (For example improving policy? improving communication? improving education practice/programs?)
Appendix 3: Table of Common Factors Significant in Framing Marine Educators’ Environmental Connections

<table>
<thead>
<tr>
<th>Group</th>
<th>Category</th>
<th>Susan</th>
<th>Calvin</th>
<th>Patrick</th>
<th>Rick</th>
<th>Gloria</th>
<th>Mark</th>
<th>Harry</th>
<th>Geoff</th>
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<tbody>
<tr>
<td>Childhood</td>
<td>Nature/Outdoors Experience</td>
<td>Child Nature/Outdoors</td>
<td>Exploring wilderness</td>
<td>Living in a remote rural area</td>
<td>Lived in country</td>
<td>Grew up on Atlantic Ocean beach</td>
<td>Lived on farm</td>
<td>Lived near coast</td>
<td>Summers spent at Grandparents’ Frankston beach-house; snorkelled as child</td>
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<td></td>
<td>&quot;Classic coastal cultural background&quot;; holidays by seaside; summer school holiday swimming; etc.</td>
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<tr>
<td>Influential People</td>
<td>Close Family</td>
<td></td>
<td>Father</td>
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<td>Five brothers</td>
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<td>Media</td>
<td>Influential as child</td>
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<tr>
<td>Teenage</td>
<td>Nature/Outdoors Experience</td>
<td>Teenage Outdoors</td>
<td>Exploring wilderness of internal Canada</td>
<td>Rode to rocky beaches</td>
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<td>Summer school program; wrote pioneering field guide</td>
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<td>Group</td>
<td>Category</td>
<td>Susan</td>
<td>Calvin</td>
<td>Patrick</td>
<td>Nick</td>
<td>Gloria</td>
<td>Mark</td>
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<tr>
<td>Teenage</td>
<td>Education</td>
<td>Secondary School Course</td>
<td>Classroom for the environment</td>
<td>Marine biology program</td>
<td>High school on coast;</td>
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<td>(cont.)</td>
<td></td>
<td>Secondary practical work</td>
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<tr>
<td>Influential</td>
<td>people</td>
<td>Teachers</td>
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<td></td>
<td></td>
<td>Community</td>
<td>Grew up with hunters &amp; gatherers (knew the environment)</td>
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<tr>
<td>Adult</td>
<td>Nature/Outdoors</td>
<td>Adult Nature/Outdoors</td>
<td>Working with QMDC; Snorkelling experience with student group</td>
<td>Always lived near ocean</td>
<td>Intensive marine biology course; travelling/camping extensively around BC</td>
<td>Running marine immersed educational programs with QMDC</td>
<td>Always been a coastal person;</td>
<td>Chose to spend maximize time on beach</td>
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<tr>
<td></td>
<td>Experience</td>
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<tr>
<td>Education</td>
<td>Tertiary Education</td>
<td>Ecology classes at University</td>
<td>Park ranger Course; Teacher; Masters in eco-system mgt</td>
<td>Assistant apprentice in marine research lab</td>
<td>Took extra marine-related subjects</td>
<td>Studied education and science.</td>
<td>2nd year Invertebrate biology (mainly marine); Higher degrees in coastal &amp; marine</td>
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<tr>
<td>Group</td>
<td>Category</td>
<td>Susan</td>
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<tr>
<td>Adult (cont.)</td>
<td>Work</td>
<td>Work</td>
<td>Public education work</td>
<td>Teacher; QMDC snorkelling experience</td>
<td>Liaised with indigenous groups</td>
<td>Student excursions to seashore; Wrote key curriculum &amp; books; wilderness experiences</td>
<td>Taught marine studies – professional development programs with QMDC</td>
<td>Worked in mining company; Teacher – set up aquariums in schools; Freelancer; Working with the Gould League as an author; Deep sea exploration crew member</td>
<td>Worked on public interest research group’s coastal env. Study; wrote rocky shore identification book</td>
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<tr>
<td>Influential people as adult</td>
<td>Close Family</td>
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<td></td>
<td>Wife – partner in working together</td>
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<tr>
<td>Teachers</td>
<td></td>
<td></td>
<td>University professor (native American)</td>
<td>Undergraduate University professor</td>
<td>Marine biologist</td>
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</table>
### Group: Adult (cont.)

<table>
<thead>
<tr>
<th>Category</th>
<th>Susan</th>
<th>Calvin</th>
<th>Patrick</th>
<th>Nick</th>
<th>Gloria</th>
<th>Mark</th>
<th>Harry</th>
<th>Geoff</th>
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</thead>
<tbody>
<tr>
<td>Influential people as adult (cont.)</td>
<td>Work</td>
<td>Work</td>
<td></td>
<td>QMCC staff; Teachers who have commitment to own learning; People who make the discoveries – inspirational people</td>
<td>Woods Hole Oceanographic Institute</td>
<td>Marine educators from NMMEA conferences</td>
<td>Marine educators from the Queenscliff Marine Studies Centre</td>
<td>Eric Bird – coastal biogeographer; Alan Reed – Gould League &amp; ACF; MESA educators – John Tamin;</td>
</tr>
<tr>
<td>Work colleagues &amp; other marine educators</td>
<td>Work colleagues -whale biologists -marine educators</td>
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<tr>
<td>Friends</td>
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<tr>
<td>Aboriginal culture</td>
<td>Aboriginal elders</td>
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<td></td>
<td>Rock-hound friend encouraged interest in geology</td>
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</tbody>
</table>
References

**Time and Tide**

The living, teeming sea connects me to my past, to the lives of my ancestors and to the future I imagine will come after me.

Tim Winton, 1997


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Appendices


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Appendices


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Appendices


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