Coastal and Marine
Experiential Education

Marine Citizenship within the international Sail Training Industry.

The working environment of a STV as the flagship delivery Platform of Marine Environmental Education in Youth Development.

By
Laura Ellen Lyth

Department of Geography
MSc Coastal and Marine Resource Management
July 2012
(Extracted and Revised June 2017)

University of
Portsmouth

Introduction
Ellen Greenaway-Bowen BA(Hons) MSc
Coastal and Marine Experiential Education [CMEE]
2012

Currently, there is still very little known about the marine environment. NOAA[11] identify that "natural resources exist in a delicate balance and are vulnerable to environmental changes". They continue by suggesting that it is important that everyone contributes to conserving, preserving, and maintaining the Earth's resources; and by doing so protecting the environment that sustains the human population with food, fuel, shelter and medicine. Natural England[9] adds to this by stating that the oceans and seas absorb and retain more carbon dioxide than the land, which plays a key role in combating climate change.

Handwerk[4] suggests that until recently the ocean has been regarded as an inexhaustible resource and could withstand the depletion rate [of fish] imposed on it by humans; adding that humans did not have the ability to seriously pollute the waters at a detrimental rate. However, the Marinebio Conservation Society[5] suggest that because the oceans have been taken for granted in such a way , the oceans are just as vulnerable as any other part of the earth from harmful and unsustainable human activity . Such activities include overfishing, pollution, introduction of exotic species and coastal development[12]. For this reason, U.S. Environmental Protection Agency[15] recommends that conservation plans are necessary to save the marine ecosystems from being lost, which would include education.

A notable result of marine pollution has been the swirling masses of waste located mainly in the Pacific Ocean; with reports of others in both the Atlantic and Indian Ocean as well[6-7,16]. The Pacific masses have been estimated by scientists to be roughly the size of Texas [2,6].

Not only does this plastic pollution have a harmful impact on marine life, it can also create an accumulation of toxic particles in the food chain posing a risk to human health too[1]. Dr Eriksen commented: "Hundreds of millions of tiny plastic pellets, or nurdles – the raw materials for the plastic industry – are lost or spilled every year, working their way into the sea. These pollutants act as chemical sponges attracting man-made chemicals such as hydrocarbons and the pesticide DDT, entering the food chain….. What goes into the ocean goes into these animals and onto your dinner plate. It's that simple,"[6].

Dr Carl Safina has suggested also that there is a need for "a stronger sense of right and wrong when it comes to the way we treat the ocean and marine life" and as a result launched a Sea Ethic. This identifies that humans' ought to manage the ocean resources sustainably; taking powerful measures to prevent habitat destruction, species depletion, pollution and other potentially indictable threats to the ocean environment[5].

However, the Ministry of the Environment Government of Japan[8] states that effective marine environmental pollution prevention can only be successful if all nations join forces to address the issues. This promotes the concepts of holism; integration and sustainability which are fundamental within the role of organisations such as the IMO. This has also been supported during the 2012 Rio+20 conference, identifying that "careful management of this essential global resource is a key feature for a sustainable future"[13-14]. During the Rio+20 conference a set of guidelines were established for the future sustainable management of the oceans and the conservation of its resources, known as the "Blue Economy". However, Enric Sala suggests that there has been limited progress due to a false opposition between economic development and environmental conservation; stating "In the long

term there is no prosperity without sustainable use of natural resources…… A blue economy is a smarter economy than the current one of overexploiting one resource and then simply going on to the next"4. This also supported by The Economist's World Oceans Summit in Singapore, February 2012. Here, economic interest was examined regarding how the increasing activity in and around the oceans can be managed sustainably and what this means for business and other key stakeholders[11].

To embrace the concept of sustainability, the voluntary commitment 'ocean stewardship initiative in the blue society' was also created developed at Rio+20. This "brings together researchers, policy makers, economic stakeholders, local authorities and the general public in dialogue, mutual learning, and action in order to develop the "Blue Society" concept, a new vision of our life on Earth, in the spirit of sustainability, well-being and equity for mankind in harmony with the World Ocean…..by working with civil society, youth and other stakeholders [in Europe]"[11].

By using Sail Training as a 'delivery platform' for marine environmental education; it is hoped that it will increase awareness of the indictable threats suggested by Dr Carl Safina in a positive and enjoyable manner. In addition, it is hoped that it may support international initiatives and policies, such as Rio+20 and the EU Marine Policy by educating future generations to create a "more competitive, dynamic and knowledge-driven economy"[6]. By adopting an international perspective within the sail training industry regarding the voluntary adoption of marine environmental education programmes; this report seeks to address opinions such as those expressed by the Ministry of the Environment Government of Japan.

References

1. Depecker, C. (2012, June 12). *Trying To Spot The Ocean's "Plastic Soup" From Up High*. Retrieved from World crunch website: http://www.worldcrunch.com/tech-science/trying-to-spot-the-ocean-s-plastic-soup-from-up-high/c4s5496/

2. Discovery News. (2012, May 9). *Pacific Plastic Soup 100-fold Increase*. Retrieved from Discovery website: http://news.discovery.com/earth/pacific-ocean-plastic-increase-120509.html

3. European Commission. (2006). *Environment fact sheet: protecting and conserving the marien environment.* Retrieved from Europa website: http://ec.europa.eu/environment/pubs/pdf/factsheets/marine.pdf

4. Handwerk, B. (2012). Sustainable Earth: Oceans . Retrieved from National Geographic Society website: http://environment.nationalgeographic.com/environment/sustainable-earth/oceans/

5. Marinebio Conservation Society. (2012). A sea ethic. Retrieved from Marinebio Conservation Society website: http://marinebio.org/oceans/conservation/sea-ethic/

6. Marks, K., & Howden, D. (2008, February 8). The world's rubbish dump: a tip that stretches from Hawaii to Japan. Retrieved from The Independant website: http://www.independent.co.uk/environment/green-living/the-worlds-rubbish-dump-a-tip-that-stretches-from-hawaii-to-japan-778016.html

7. Melia, M. (2012, April 15). A 2nd garbage patch: Plastic soup seen in Atlantic. Retrieved from Global Garbage website: http://www.globalgarbage.org/blog/index.ph

p/2010/04/15/a-2nd-garbage-patch-plastic-soup-seen-in-atlantic/

8. Ministry of the Environment Government of Japan . (2012). Conservation of Mmarine environment. Retrieved from Ministry of the Environment website: http://www.env.go.jp/en/earth/marine/conservation.html

9. Natural England. (2012). The Marine Conservation Zone Project – Features Catalogue. Retrieved from Natural England website: http://www.naturalengland.org.uk/ourwork/marine/mpa/mcz/features/default.aspx

10. NOAA. (2012). Preserving our planet. Retrieved from noaa.gov: http://www.noaa.gov/features/resources/planet.html

11. The Economist (n.d), World Oceans Summit, retrieved from The Economist Conferences website: http://www.economistconferences.asia/event/world-oceans-summit

12. Töpke, K. (2009). Marine habitats and ecosystems. Retrieved from Marine Biodiversity Ecosystem Functioning (MarBEF) website: http://www.marbef.org/wiki/Marine_habitats_and_ecosystems#_note-2

13. United Nations, (2011). The ocean stewardship initavite in the blue society. Retrieved from Rio+20 United Nations conference on Sustainable Development website: http://www.uncsd2012.org/index.php?page=view&type=1006&menu=153&nr=513.

14. United Nations, (2012). Oceans. Retrieved from Rio+20 the future we want: http://www.un.org/en/sustainablefuture/oceans.shtml

15. U.S. Environmental Protection Agency. (2010). Aquatic Biodiversity. Retrieved from U.S. Environmental Protection Agency website: http://www.epa.gov/bioiweb1/aquatic/index.html

16. Wassener, B. (2011, May 23). *How to Rid the Seas of 'Plastic Soup'?* Retrieved from New York Times blog: http://green.blogs.nytimes.com/2011/05/23/pity-the-oceans-vast-stews-of-plastic-soup/

Sail Training: Possibly the flagship of Marine Environmental Education in Youth Development.

Ellen Greenaway-Bowen BA(Hons) MSc
Coastal and Marine Experiential Education [CMEE]
2013

cmee.eu@gmail.com   www.cmee.eu

Abstract

It can be suggested that the marriage between Marine Geography and Experiential Education on board Sail Training Vessels [STVs] laid the foundations for Marine Experiential Education. To support this; focus is brought to the key concepts behind Marine Environmental Education [MEE] with an explanation of its evolution are introduced; including the idea of shared responsibility for the marine environment; how coastal and marine subjects are currently taught concluding with a discussion regarding the underdevelopment of MEE in comparison to similar land based environmental initiatives.

Secondly, the concept of Sail Training as a format of experiential education is introduced, explaining the relationship between Sail Training, Citizenship and Youth Development. This is followed by the identification of the connection between Sail Training and formal education subjects. This enabled the concept of Marine Citizenship to be introduced and its affilition to Sail Training. It is this affiliation that has enable the development of Marine Experiential Education.

Key words: *Citizenship, Education, Environment[al], Marine, Sail Training, Youth Development.*

1. The evolution of marine environmental education.

1.1. Key concept behind marine environmental education.

Integrated Coastal Zone Management [ICZM] was developed during the United Nations Conference on Environment and Development [UNCED] or the 'Earth Summit', Rio de Janeiro, Brazil in 1992, as the fundamental concept of managing the world's coastal zones and oceans (Vallega, 2010). It has been suggested that the aim of ICZM *is "to improve the quality of life of human communities who depend on coastal resources while maintaining the biodiversity and productivity of coastal ecosystems"* (Johnson, et al., 2000 P. 953; GESAMP, 1996). This is achieved through a process that *"unites government and the community, science and management, sectoral and public interests in preparing and implementing an integrated plan for*

the protection and development of coastal ecosystems and resources'' ([Kawabe, et al., 2009](#), p. 720; [GESAMP, et al., 1996](#); [Cicin-Sain and Knecht, 1998](#)).

The UNCED identified sustainable development as its central concept ([Kawabe et al., 2009](#)). The essence of sustainable development relates to the *"actions of one generation passing on resources to the next in the condition that they found them"* [(Dixon-Gough, 2001, p132](#)). To further encourage the implementation of the sustainability concept; Chapter 36 of Agenda 21 is dedicated to education and emphasises the importance of promoting sustainable development through education and improving the capacity for people in all areas ([Kawabe et al, 2009](#)). This is achieved by *"providing access for concerned individuals, groups, organisations to relevant information and opportunities for consultation and participation in planning and decision making at appropriate levels" (*[Heeps, 1996](#)*)*. To further emphasis the UN's commitment to education, in 2002 it declared a consideration that 2005-2014 would be the ''Decade of Education for Sustainable Development'' ([United Nations, 2002](#)).

ICZM embraces sustainability through *"the ethical and environmental needs assuring the ecosystem's integrity and enjoyment of the ecosystem for the future generations by minimising the man-made ecosystem changes"* ([Gourbesville, n.d, sec 3.2, para 4-](#)5; [Vallega, 1993](#)).

1.2. Brief history of how Marine Environmental Education has evolved.

In the last 20 years, ICZM is now globally considered as the most appropriate tool to achieve sustainable coastal development ([Garriga & Losada, 2010](#)). The development of several EU coastal related policies, including the Future Maritime Policy and its practical application has been encouraged by EU recommendations ([Garriga and Losada, 2010](#); [European Environment Agency, 2006](#)). To achieve this, there is a need to educate and train to the needs of the target audience in respect of their place of work/ learning environment ([Shah, Treby, May and Walsh, 2007](#)).

The European Commission's Integrated Maritime Policy [ECIMP] *"seeks to provide a more coherent approach to maritime issues, with increased coordination between different policy areas"* ([European Commission, 2012](#)). A main objective of the ECIMP relates the issues that require the co-ordination of different sectors and actors, such as marine knowledge. Marine Experiential Education aims to meet this objective in relation to developing marine knowledge. As *"Sail Training voyages [and events] can assist the future of a maritime Europe … promoting awareness of maritime heritage and modern maritime activities and identity, assisting with education and knowledge about the environment and promoting coastal tourism"* ([Sail Training International, 2010](#)). This statement also suggests support of ECIMP's long term strategy to support growth in the maritime sector known as 'Blue Growth'. Marine Experiential Education aspires to meet the 'Blue Growth' aim:
•   Identify activities with high growth potential in the long term and support them by fostering investment in research and innovation and promoting skills through education and training.

By achieving this aim of ECIMP's Blue Growth strategy, it could be suggested that a long term goal of Sail Training could

be to adopt a capacity building concept within their marine environmental educational activities. Cicin-Sain, Knecht, Vallega and Harakunarak (2000) state that the aim of *"capacity building should be to create a situation wherein outside or external assistance is no longer needed, that is, to have educational and training facilities in place that will meets the needs for ICZM [professionals]"*.

1.3. Marine environmental awareness and protection - trailing behind land based alternatives.

However, it has been suggested that marine environmental protection is decades behind land based initiatives and very little is still known about offshore deep water areas (Clay and Pitcher, 2004; Foundation for International Environmental Law, 2010). It could be implied that a degree of frustration as the sea have always been the poor relation to space which Dr Earle supports, stating *"we know more about other parts of the Solar System than we do our own ocean"* (BBC, 2012)*.* The irony of this statement is that NASA conducts Oceanography research and produce learning resources as part of their *"Science Mission Directorate [SMD]"* (NASA, 2012). In an interview with Dan Stillman of the Institute for Global Environment Strategies, the NASA Oceanographer Gene Feldman provides a possible justification for this situation:

> *"The ocean is really a hard place to work. In many ways, it's easier to send a person to space than to the bottom of the ocean. The ocean is dark and cold. In space, you can see forever. Deep in the ocean, you can't see much. Your light can't shine very far"* (NASA, 2009).

This shortage of information available could be recognised as a contributing factor for the absence of marine awareness, poor public awareness of the marine environment, knowledge of how to reduce personal impact through individual behaviour as well a scarce consideration of the implications of individual actions. (McKinley & Fletcher, 2012; Castle, Fletcher, & McKinley, 2012; Fletcher, Potts, Heeps, & Pike, 2009; Jefferson, 2010). Although it is not certain; McKinley and Fletcher (2012, p839) suggest that there maybe a *"perceived or actual citizen disinterest, uncertainty over how to engage citizens in marine issues, and the sense that given the scale of the oceans, individual ability to act appears limited. In parallel, most coastal and marine governance programmes have focused at international, regional sea, national, or local scale, and have not directly engaged with individuals"*. Ducrotoy (2003) identifies that because the marine environment belongs to all global citizens, they share responsibility of its sustainable use.

1.4. The development of a 'shared responsibility'.

In an attempt to overcome this lack of education of the marine environment, several organisations across the globe are embracing a "shared responsibility" by developing initiatives that explore how a *"healthier ocean can sustain life now and for future generations as the ocean is critical to life on earth. Our health and the health of the planet depend on a healthy ocean."* (National Geographic Society, 2012; See **Error! Reference source not found.**1). This development within conservation and management of the marine environment during the last 40 years has created a transition from top-down towards bottom–up governance

framework (McKinley & Fletcher, 2010; Applestrand, 2002) which includes the development of school level academic qualifications across the globe.

"Education is recognised as a fundamental human right and is instrumental in providing individuals with the power to reflect, make choices and enjoy a better life. Education also has powerful synergistic effects on other development objectives, empowerment, protection of the environment, better health and good governance" (UNESCO, 2000). These effects are the focal point of Sail Training overall, and a study by Norris and Weinman (1996) suggests that all 'trainees' show vast improvements and a *"highly significant increase in self-esteem"* as a result of the the Sail Training experience. In support of this, Kuijper (2003, p. 266) identifies that *"education is an important tool in building environmental awareness that will change the people's attitude toward conservation and sustainable development"*.

1.5. Teaching and education of coastal and marine based subjects.

To understand teaching coastal and marine based subjects; Chircop (2000) identified several lessons that despite being based on classroom teaching; ought to be considered when developing a marine environmental programme within the Sail Training industry. Firstly it's identified that there is no single approach to developing an education programme in marine related subjects. This is due to coastal and marine based subjects been difficult to teach due to their inter-disciplinary perspectives, methodologies and content. Chircop (2000) continues to suggest that the traditional approach of lecturing tends not to achieve the desired

learning objectives as lecturing veers towards a class hierarchy and single instructor bias. The approaches and tools considered ought to facilitate a learning environment that is problem orientated and built upon the learning environment itself. There is a need of genuine concern from the educator regarding the environment and culture; the relationship between the two and the diversity within. This would suggest that in some cases, an integrated, decentralised approach to teaching ICZM and marine related subjects.

To reinforce this, Demirkaya & Atayeter (2011) conducted a geography fieldtrip study with a group of higher education students. This study suggested that classroom based learning was not always the most appropriate learning method. Participant statements included *"the knowledge which is learned in a classroom is forgotten soon. For instance, I cannot envisage the valley when it is thought in classroom, but I don't forget it throughout my life if it is taught in the field"* and *"theoretical knowledge presented in classroom is not permanent for me. When this knowledge is learned in the field with the guidance of the instructor, it becomes more permanent"*. These participant statements also suggest that the phenomenon of fieldwork as a form of experiential learning helps our understanding of which is a holistic process involving a human side of learning (Lai, 1999; Boud, Cohen and Walker, 1993; Weil and McGill,1989).

Chirop (2000) also implies that students may experience discomfort with complex issues addressed within marine related subjects; risking the feeling of been *"overwhelmed and retreating into one's own shell. The psychology of inter-disciplinarity requires humility, an open*

mind and perseverance" – attributes which are well established within the Sail Training experience. To assist the student to overcome these experiences; the educator ought to adopt a facilitator role, creating an encouraging and contributing environment. This supports the educational theory 'constructivism' that Henstock (2011) identifies as being common place within Sail Training and recognises some of the key elements of constructivism, which are:

•   a decentralised Trainee Centred approach

•   Scaffolding: this provides clear direction; clarifies purpose; keeps students on task; offers assessment to clarify expectations; points students to worthy resources, reduces uncertainty and surprise and creates momentum.

•   Peer support

•   Self-Discovery

These elements aim to minimise the feeling of discomfort and been overwhelmed by creating an integrated, structured learning environment.

2.   The Sail Training experience; its benefits to young people and its relationship with Marine Citizenship?

2.1.   The Sail Training concept.

The key ideology behind Sail Training is that it is *"less a training for the sea than through the sea"* (Milner, 1990: p. 59; McCarthy, 2011; McCulloch, 2002, 2004). McCulloch (2004: p. 185) explains that this is achieved through *"taking young people to sea as a means to social and educational objectives"* whereby *"the core purpose is not to teach seamanship but to use seafaring as a context for education.*

Sail Training might be said to provide a context for learning, but to form only a modest and perhaps not ultimately very significant part of the content of that learning".

Wright (2012) suggests that Sail Training is not just the process of learning to sail and is a much bigger experience as through adventure at sea it offers personal development, stating:

> *"Been at sea is a challenging experience for anyone, living for days at a time in a confined space, with people who were strangers just 24 hours before and limited access to home comforts and familiar routines. Unlike residential settings ashore, once you are at sea you are unable to escape or give up when things get tough. The voyage goes on around you, and more importantly people are depending on you to do your part. All while things refuse to remain horizontal. "*

In particular, when used for personal development with young people (16-25 years old), the Association of Sail Training Organisations [ASTO] (2008) identifies that Sail Training develops self-confidence and changes lives in a fun and challenging way; within an environment that has a clear common purpose, defined boundaries, is intense and has a structured environment. McCarthy (2011) also supports this by suggesting that outdoor adventure activities and particularly Sail Training, *"have a long and successful history in delivering beneficial personal and social change".*

2.2.   Sail Training, Citizenship and Youth Development.

Taking a litoral view (which may cause confusion regarding the concept), it could be suggested that Sail Training is teaching a young person the sport of sailing. However, McCarthy, (2011) also identified that *"simply playing sport does not ensure that young people will learn the skills and develop the attitudes that will prepare them for productive futures"* (Petitpas, Cornelius, & Van Raalte, 2008); adding that *"it is the structure and context of the activities rather than the activity itself that determine whether the outcomes are positive or negative in terms of adolescent development"* (Cote, Strachan, & Fraser-Thomas, 2008; Holt & Sehn, 2008). To reinforce these statements, there have been several perceived benefits identified by various authors, land based youth work organisations, Sail Training organisations and a number of studies, notably regarding social capital and citizenship skills. These benefits include:

- Increased Self confidence
- Increased Self esteem
- Increased Motivation
- More tolerance
- The opportunity to display talents
- Enhanced teamwork skills
- Enhanced communication skills
- Encourages learning overall
- Creates a positive environment
- Identifies previously unknown career opportunities
- Staying out of trouble (regarding youth offending)
- Promotes a healthier, more active lifestyle
- Gaining respect for others (and oneself)
- Improved life skills overall
- Manage diversity and homogeneity on a daily basis,
- Recognise the value of instrumental interpersonal relationships

- Develop new friendships
- Gain appreciation of the social value of rules, regulations and authority
- Develops a greater awareness of the civic society at large.

(Nash, 2008; Gordon, Harcourt-Smith, Hay, & Priest, 1996; Tall Ships Youth Trust, 2012; Norris & Weinman, 1996; McCulloch, 2007; Finkelstein, 2006).

2.3. How Sail Training can be linked to formal education.

In additon to the social capital and citizenship skills that Sail Training has been advocated to develop within young people; Westward Quest Ltd (2010) have identified several currilua subjects that can be addressed within a Sail Training voyage, for example (but not limited to):

- English: use of Literacy through maintaining the ship's log
- Mathematics: numarcy whilst navigating and trigamonetry with passage planning
- Engineering/ mechanics: from maintenance of the ship's systems
- Environmental studies: the 'carbon footprint of the vessel'
- Biology: The bio-diversity of the marine environment
- Heritage and history: exploration, trade and warfare through the use of sailing ships
- Astronomy: the effect of the sun and the moon on tides, star navigation
- Food technology/ Home economics: understanding nutrition menu planning and food preparation
- Physics: how the sails harness the energy of the wind to drive the vessel
- Meteorology: causes of particular weather conditions using information obtained from the land, sea and upper atmosphere. (Prospects, 2012)

- Chemistry: products used for ship's maintenace, cleaning, water salintation, fuel useage
- Geography: visiting various new locations and experincing new cultures; exercising the concept of longitude and latitude when using navigation charts.

2.4.   The concept of marine citizenship.

Marine citizenship has been identified as an extension to the environmental citizenship concept (Hawthrone & Alabaster, 1999). Roth (1992) explains that an environmental citizen *"recognises environmental issues when they arise and attempts to prevent and resolve problems through his individual behavioural choices"*. The following sections identify the concept of marine citizenship and the relationship to Sail Training.

McKinley (2010) states that the concept of marine citizenship is where individuals take an increased personal responsibility for the seas and oceans and its environment; whereby a 'marine citizen' displays an awareness and concern for the marine environment. It is argued that a marine citizen also requires an understanding of how their [human] behaviour impacts on the marine environment; requiring a superior *"awareness of marine environmental issues, an understanding of the role of personal behaviour in creating and resolving marine environmental issues",* as well as a shift in values and motivation to promote pro-environmental lifestyle choices (McKinley and Fletcher, 2012, p. 839).

2.5.   The relationship between marine citizenship and Sail Training.

Widiarti (2010) advises that to ensure the preservation of the marine environment, every human being requires to be aware of their need to participate in the conservation and protection of marine life. To develop a passion for the sea, marine awareness needs to be taught from a young age, recommending that development of this enthusiasm ought to begin with children and young people. There is evidence from Sail Training sources that young people participating in Sail Training voyages do develop an enthusiasm for the sea. It is reported that prior to a voyage the positive anticipation generated relates to *"excitement or adventure, making new friends and going to new places as well as being at sea and observing marine wildlife"* (McCulloch, K., McLaughlin, P., Allison, P., Edwards, V. and Tett, L; 2007 and 2010). During a voyage, the experiences of the young people may also create permanent emotional connections and lasting memories. OYTScotland (2008) reported that a young person on board one of their vessels the ALBA EXPLORER and ALBA ENDEAVOUR commented about their experiences, stating that *"although it was challenging, it was an amazing experience. The best moment was standing in front of the boat whilst the waves crashed over us. I will never forget that feeling".* Westward Quest Ltd (2010) supported this by commenting on the reaction of young people participating on their Sail Training programme:

> *"All participants learnt new sailing skills. They increased their appreciation of wildlife, natural beauty, and the environment. They enjoyed exploring islands and learning about life on the sea …… their horizons are broadened and passion grows (Ewert, 1989)…… and passionate young people*

benefit communities We believe that the wider community will benefit from the fact that these young people are more positive about their achievements and confident in their abilities to work in a team."
(*TEDxYouth@TampaBay, 2010*).

Drago and Muscat (2010) identify that the marine environment is generally not easily accessible *"to the inquisitive eyes and minds of children"*. This supports the description by Dr. Earle (2011) that the biggest threat to the oceans is 'ignorance' and stressed that *"you have to know about it to care about it"*. Not only does this argument suggest that knowledge and education are central to marine citizenship; it could also suggest that by using Sail Training as a delivery platform for marine environmental education applying marine citizenship in a tangible, real environment the lack of public awareness, participation and knowledge can be overcome.

3. Conclusion.

The use of Sail Training as an experiential education tool in youth development has to date been extremely successful. As society as a whole begins to identify the importance of the marine environment in relation to the planet's overall environment and human life; the need for the development of a marine base culture with the development of marine citizens is ever present.

The experiential education experience provided during a Sail Training voyage can have the opportunity to positively change perceptions within young people in Section 2.1. This is also a key strength to educate young people in marine citizenship whilst participating in Sail Training voyages. This is due to marine citizenship requiring *"a component focused upon changing values with respect to the marine environment, as improved awareness and knowledge are in themselves unlikely to deliver significant benefits for marine environmental health"* (McKinley & Fletcher, 2012).

The formation of Marine Experiential Education, primarily based in Sail Training, provides an invaluable opportunity to engage young people in the importance of protecting the marine environment and encourage the adoption of sustainable living practice once they return to land; and as such an opportunity to promote a marine culture and create marine citizens.

It could also be suggested that by delivering Marine Experiential Education on board STVs, it provides young people an opportunity to learn about and experience the marine environment in a stimulating and fun environment with a plethora of opportunities of discovery. It can create marine citizens in the environment that they are been taught to preserve and protect has the potential to create a tangible, unforgettable experience with significant emotional bonds. These types of experiences could provide opportunities for long lasting behavioural changes and a new found respect for the marine environment.

The Sail Training concept is based on personal development within a challenging environment, enhancing a young person's awareness and appreciation of the marine environment. This is achieved by enabling young people to engage in real scenarios, which in turn develops marine citizenship via the broadening of their horizons.

As Section 2.2 suggests, the Sail Training concept is at the forefront of providing citizenship education to young people. By developing this citizenship education to also focus on the marine environment (marine citizenship), increasing a young person's responsibility for the seas and oceans and the surrounding environment, Marine Experiential Education as a concept is created.

It could be suggested that there is a solid foundation of Marine Citizenship within the Sail Training industry and it has the potential to develop further:

- The creation of positive environments
- Gaining respect
- Encouragement of learning overall
- Higher tolerance levels
- A greater awareness of the civic society at large.
- Identification of previously unknown career opportunities.

References

1. Chircop, A. (2000). Teaching integrated coastal management: lessons from the learning arena. *Ocean & Coastal Management, 43*, 343-359.
2. Norris, R. M., & Weinman, J. A. (1996). Psychological change following a long sail training voyage. *Personality and Individual Differences, 21*(2), 189-194.
3. Applestrand, M. (2002). Participation and societial values: The challenge for lawmakers adn policy practitioners. *Forest Policy and Economics, 4*, 281-290.
4. ASTO. (2008). *Why use sail training for youth work?* Retrieved from ASTO: http://www.asto.org.uk/sail-to-adventure/why-does-sail-training-work
5. BBC. (2012). *Race to the bottom of the ocean: Why go down?* Retrieved from BBC News Science and Environment: http://www.bbc.co.uk/news/science-environment-17041438
6. Boud, D., Cohen, R., & Walker, D. (1993). *Using Experience for Learning,.* Buckingham: Society for Research into Higher Education and Open University Press,.
7. Castle, Z., Fletcher, S., & McKinley, E. (2012). Coastal and marine education in schools: constraints and opportunites created by the curriculum, schools and teachers in England. *Ocean Yearbook, 24*, 425-444.
8. Cicin-Sain, B., & Knecht, R. (1998). *Integrated Coastal and Ocean Management Concepts and Practices.* Washington D.C., USA: Island Press.
9. Cicin-Sain, B., Knecht, R. W., Vallega, A., & Harakunarak, A. (2000). Education and training in integrated coastal management: lessons form the international arean. *Ocean and Coastal Management*(43), 291-330.
10. Cote, J., Strachan, L., & Fraser-Thomas, J. (2008). Participation, personal development, and performance through sport. In N. L. Holt, *Positive Youth Development Through Sport* (pp. 38-39). London: Routledge.
11. Demirkaya, H., & Atayeter, Y. (2011). A study on the experiences of university lecturers and students in the geography field trip. *Procedia Social and Behavioral Sciences, 19*, 453-461. doi:10.1016/j.sbspro.2011.05.154
12. Dixon-Gough, R. (2001). *European Coastal Zone Management Partnership approaches.* Aldershot, England: Ashgate Publishing Ltd.
13. Ducrotoy, J. P. (2003). Education challenges in the North Sea area. *Marine Pollution Bullitin, 47*, 246-252.
14. European Commission. (2012). *Maritime affairs integrated maritime policy*. Retrieved from europa.eu: http://ec.europa.eu/maritimeaffairs/policy/index_en.htm
15. European Environment Agency. (2006). *The changing faces of coastal areas. EEA Report No.6/2006.*
16. Ewert, A. W. (1989). *Outdoor adventure pursuits: Foundations, models, and theories.* Columbus, OH: Publishing Horizons.

17. Finkelstein, J. (2006). *Sailing into the future: Final Report on ARC Linkage Research Project 2002-2005 between Young Endeavour Youth Scheme and the University of Sydney.* Sydney, NSW, Australia: Young Endevour Youth Scheme.

18. Fletcher, S., Potts, J. S., Heeps, C., & Pike, K. (2009). Public awareness of marine environmental issues in the UK. *Marine Policy, 33*(2), 370-375.

19. Foundation for International Environmental Law. (2010). *Marine Protected Areas.* Retrieved from /www.field.org.uk: http://www.field.org.uk/work-areas/biodiversity-and-marine-environments/marine-environments/marine-protected-areas

20. Garriga, M., & Losada, I. J. (2010). Education and training for integrated coastal zone management in Europe. *Ocean & Coastal Management, 53*, 89-98.

21. GESAMP, IMO, FAO, UNESCO-IOC, WMO, WHO, . . . UNEP. (1996). *Joint working group of experts on the scientific aspects of marine environmental protection. The contributions of science to coastal zone management. Report and Studies.* GESAMP.

22. Gordon, S., Harcourt-Smith, K., Hay, K., & Priest, S. (1996). Case study of "Blue watch" on STS Leewin. *Journal of Adventure Education and Outdoor Leadership, 13*(1), 4-7.

23. Gourbesville, P. (n.d). *Sustainable development and Integrated Coastal Management in highly sensitive environments: concepts and application.* Nice, France: University of Nice.

24. Hawthrone , M., & Alabaster, T. (1999). Citizen 2000: development of a model of environmental citizenship. *Global Environmental Change, 9*, 25-43.

25. Heeps, C. (1996). Sharing the secrets of the sea: new approaches to marine environmental education, interpretation and public participation. In J. Taussik, & J. Mitchell, *Partnership in Coastal Zone Management* (pp. 581-588). Cardigan: Samara Publishing Ltd.

26. Henstock, M. (2011). How Trainees Learn. *Sail Training Interantional Annual Conference 2011.* Toulon.

27. Holt, N. L., & Sehn, Z. L. (2008). Processes associated with positive youth development and participation in competitive youth sport. In N. L. Holt, *Positive Youth Development* (p. 30). London: Routledge.

28. Jefferson, R. (2010). Communicating marein environmental health: connecting scicens, society and political values. 253. University of Plymouth.

29. Johnson, D., Fletcher, S., Shibaev, S., Shikitshy, V., Upton, A., & Zagorodny, A. (2000). Integrated coastal management educationin the Russian Federation vthrough academic partnership. *Ocean and Coastal Management, 43*, 953-962.

30. Kawabe, M., Kohno, H., Ishimaru, T., Baba, O., Horimoto, N., Ikeda, R., . . . Sasaki, T. (2009). Education for sustainable development for Tokyo Bay: Developing a practice framework of university-based coastal ESD. *Marine Policy, 33*, 720-725.

31. Kuijper, M. W. (2003). Marine and coastal environmental awareness building within the context of UNESCOs activities in Asia and the Pacific. *Marine Pollution Bulletin*, 265-272. Retrieved from www.sciencedirect.com

32. Lai, K. C. (1999). Freedom to learn: A study of the experiences of secondary school teachers and students in a geography field trip. *International Research in Geographical and Environmental Education, 8*(3), 239-255.

33. McCarthy, L. (2011). *Learning processes taking place during a residential adventure activity programme.* Birbeck, University of London, MSc in Youth Participation. Unpublished dissertation.

34. McCulloch, K. (2002). *Four days before the mast: A study of sail training in the UK.* Edinburgh: University of Edinburgh, Doctor of Philospohy, Unpublished PhD thesis.

35. McCulloch, K. (2004). Ideologies of adventure: authority and decision making in sail training. *Journal of Adventure Education & Outdoor Learning, 4*(2), 185-

197. doi:http://dx.doi.org/10.1080/147296704 85200531

36. McCulloch, K. (2007). Living at sea: learning from communal life aboard sail training vessels. *Ethnography and Education, 2*(3), 289-303.

37. McCulloch, K., McLaughin, P., Allison, P., Edwards, V., & Tett, L. (2007). *The characteristics and value of the sail training experience.* Edinburgh: University of Edinburgh. Retrieved from http://www.sailtraininginternational.org/ _uploads/documents/Research/FullRepor t.pdf

38. McCulloch, K., McLaughlin, P., Allison, P., Edwards, V., & Tett, L. (2010). Sail training as education: more than mere adventure. *Oxford Review of Education, 36*(6), 661-676. doi:http://dx.doi.org/10.1080/03054985. 2010.495466

39. Mckinley, E. (2010). *A critical evaluationof the Application of marine citizenship in sustainable marien management in the UK, Chapter two: the turn to marine citizenship.* Bournemouth: Published PhD thesis. Retrieved from University of Bournmouth.

40. McKinley, E., & Fletcher, S. (2010). Individual responsibility for the oceans? An evaluation of marine citizenship by UK marine practitioners. *Ocean and Coastal Management, 53*(7), 379-384. doi:10.1016/j.ocecoaman.2010.04.012

41. McKinley, E., & Fletcher, S. (2012). Improving marine environmental health through marine citizenship: a call for debate. *Marine Policy, 36*, 839-843. doi:10.1016/j.marpol.2011.11.001

42. Milner, J. L. (1990). The Creation of Outward Bound. In J. C. Miles, & S. Priest, *Adventure education* (pp. 55-56). State College, PA:: Venture Publishing, Inc.

43. NASA. (2009). *Oceans: the great unknown*. Retrieved from NASA: http://www.nasa.gov/audience/forstuden ts/k-4/stories/oceans-the-great-unknown-k4.html

44. NASA. (2012). *NASA science about us*. Retrieved from NASA: http://nasascience.nasa.gov/about-us/

45. Nash, S. (2008). *Motiv8 (in partnership with Hmapshire Police): Life chances for young people.* Retrieved from ASTO: http://www.asto.org.uk/images/stories/S ailtrainingworksevidence/presentation%2 0to%20asto%20jan%202011.pdf

46. National Geogrpahic. (2012). *The Ocean*. Retrieved from nationalgeographic.com: http://ocean.nationalgeographic.com/oce an/?source=NavEnvOcean

47. OYTScotland. (2008). *Tall Ships race crew standing tall in Greenock, Testimonials from trainees on board Alba Endeavour and Explorer.* Retrieved from Association of Sail Training Organisations: http://www.asto.org.uk/images/stories/S ailtrainingworksevidence/tall%20ships%2 0race%20crew%20standing%20tall%20in %20greenock.pdf

48. Petitpas, A. J., Cornelius, A., & Van Raalte, J. (2008). Youth development through sport: It's all about relationships. In N. L. Holt, *Youth development through sport* (p. 61). London: Routledge.

49. Prospects. (2012). *Meteorologists*. Retrieved from Prospects: http://www.prospects.ac.uk/meteorologi st_job_description.htm

50. Roth, C. E. (1992). *Environmental literacy: its roots, evolution and directions in the 1990's.* Columbus, OH: ERIC Clearinghouse for science, mathematics and environmental education.

51. Sail Training International. (2007). *Towards a future Maritime Policy for the Union: A European vision for the oceans and seas.* Gosport: Sail Training International.

52. Tall Ships Youth Trust. (2012). *Youth work*. Retrieved from Tall Ships Youth Trust: http://tallships.org/about-us/youth-work/

53. TEDxYouth@TampaBay . (2010). *Congrats TEDxNext Generation Asheville on a Great Event!* Retrieved from TEDxYouth@TampaBay : http://tedxyouthtampabay.com/2010/08/

30/congrats-tedxnext-generation-asheville-on-a-great-event/

54. The United Nations. (2002, Dec 20). The United Nations General Assembly Resolution 57/254. Retrieved from http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N02/556/12/PDF/N0255612.pdf?OpenElement

55. Treby , E., Shah, A., May, V., & Walsh, P. (2007). Bridging the divide between academia and practitioners: training coastal zone managers. *Ocean and Coastal Management*(50), 859-67.

56. Valliega, A. (1993). A Conceptual Approach to Integrated Coastal Management. *Ocean and Coastal Management, 21*, 1149-1162.

57. Valliega, A. (2010). *Fundamentals of Integrated Coastal Management,.* Dordrecht, The Netherlands: Kluwer Academic Publishers.

58. Weil, S., & McGill, I. (1989). A framework for making sense of experiential learning. . In S. Weil, & I. McGill, *Making Sense of Experiential Learning: Diversity in Theory and Practice.* Milton Keynes: Society for Research into Higher Education and Open University Press.

59. Westward Quest Ltd. (2010). *Sailing and practical skills training for young people.* Retrieved from UK Sail Training: http://www.uksailtraining.co.uk/images/stories/Sailtrainingworksevidence/westwardquest.pdf

60. Westward Quest Ltd. . (2010). *Sailing and practical skills training for young people. .* Retrieved from UK Sail Training: http://www.uksailtraining.co.uk/images/stories/Sailtrainingworksevidence/westwardquest.pdf

61. Wright, R. (2012). Ocupational therapy and sail training. *Ocupational Therapy news*(March 2012), 29. Retrieved from http://www.oytsouth.org/pdfs/ot_news.pdf

62. UNESCO (2000).The Dakar Framework of Action: Education for All, Meeting our Collective Commitments. Report of the World Education Forum, Dakar, Senegal, April 2000.ED-2000/W S/27.Paris, France.

63. Widiarti, R. (2010), Marine environmental education for children –Indonesia. In UNDP/ Special Unit for South-South Cooperation/ IOI Volume 16 series: Sharing innovative experiences: examples of successful experiences in coastal community development. 16: 85-97. New York: UNDP. Retrieved from http://tcdc2.undp.org/GSSDAcademy/SIE/Docs/Vol16/17.pdf

64. Drago, A. and Muscat, M (2010), IOI-KIDS: An online learning experience on the sea for children and youth – Malta. . In UNDP/ Special Unit for South-South Cooperation/ IOI Volume 16 series: Sharing innovative experiences: examples of successful experiences in coastal community development. 16: 85-97. New York: UNDP. Retrieved from http://tcdc2.undp.org/GSSDAcademy/SIE/Docs/Vol16/19.pdf

65. Earle, S. (2011, September 11th) Healthy oceans.Presentation at the National Marine Aquarium, Plymouth. In McKinley, E., & Fletcher, S. (2012). Improving marine environmental health through marine citizenship: a call for debate. *Marine Policy*, 36, 839-843. doi: http://dx.doi.org/10.1016/j.marpol.2011.11.001

Coastal and Marine
Experiential Education

The working environment of a Sail Training Vessel as a Marine Environmental Education delivery Platform.

Ellen Greenaway-Bowen BA(Hons) MSc
Coastal and Marine Experiential Education [CMEE]
(2012)

In August 2012, the researcher spent three days and three nights on board the tall ship CLIPPER STAD AMSTERDAM. During this voyage the researcher analysed the finding collated from the Adaptive Management section of the online questionnaire in the real environment of a tall ship at sea. Prior to boarding the ship; the researcher decided to request permission from the Head Office of Clipper STAD AMSTERDAM to conduct this piece of work. The researcher also requested permission to ask a member of the ship's permanent crew to complete the same 'analysis of on board facilities' form as the researcher intended to complete. Once on board, a member of the ship's Deck officer team requested an informal discussion with the researcher based around the analysis form.

1. Overview of the Clipper STAD AMSTERDAM.

The STAD AMSTERDAM is a Dutch vessel, built in 2000. The design of the STAD AMSTERDAM is based on the clipper vessels of the 19th century merchant cargo fleet (such as the CUTTY SARK and the THERMOPYLAE). The concept of the vessel was developed by Frits Goldschmeding; founder of the Randstad employment agency and the council of Amsterdam with the Dutch vessel DE AMSTERDAM their main source of inspiration[1]. The STAD AMSTERDAM is a Hospitality tall ship, delivering three types of business – adventure sailing (which includes youth voyages), luxury cruises and corporate hospitality for international business.

In 2009, the STAD AMSTERDAM was assigned by the Dutch television broadcasting company VPRO to track the passage made by Charles Darwin on board the HMS BEAGLE from 1831 – 1836. During Darwin's voyage he conducted studies of the nature and geology of all the anchor locations of the HMS BEAGLE and these were the basis for his theory of evolution "the origin of species". During the STAD AMSTERDAM's eight month round the world passage, "the ship acted as a 'sailing studio', regularly welcoming guests from the scientific community on board. This select group researched and discussed topics such as climate change and environmental challenges"[2].

2. Overview of the August 2012 voyage.

This voyage set sail from Zebrugge, Belgium and disembarkation was in Bremerhaven , Germany (see Figure 1). It was an adventure sailing voyage for an adult crew. This did not create any research difficulties as from this part of the research no interviews of young people whilst on board were required. The purpose of the voyage was to provide the researcher an opportunity to view the facilities available on board a tall ship that caters for sail training voyages whilst at sea. During the voyage, the winds were a gentle to moderate breeze (although a strong breeze was encountered during the final night of passage); with a slight to moderate sea state and moderate to good visibility .

These conditions gave the researcher a very good opportunity to analysis on board facilities during a calm passage.
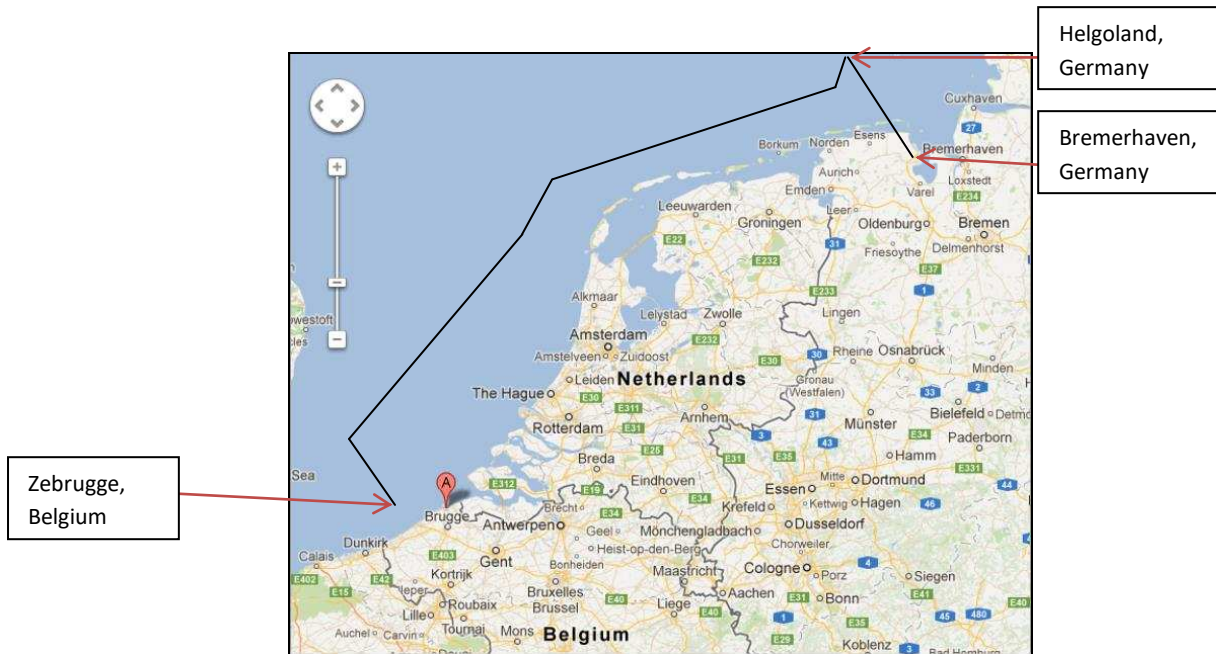
Figure 1: Zebrugge, Belgium – Bremerhaven, Germany passage route whilst on board the STAD AMSTERDAM (Google, 2012)

3. Evaluation of on board facilities.

The results from the following sections evaluate the on board learning environmental of a sail training vessel. Although these are opinions of the participants of both the online questionnaire and fieldwork research the aim is that these results highlight items for consideration when developing a marine environmental education programme to be delivered on a sail training vessel.

3.1. Limitations of teaching/ educating on board sail training vessels.

When considering the development of a Marine Environmental Education programme, several limitations were identified, many of which are identified in Table 1. In addtion to Table 1, further research identified a collection of other possible limitations:

- Providing evidence for school/ college teachers that it's a worthy and pertinent field trip.
- Trainees during Tall Ships Races are racing, do sail training and having fun and time runs also in the harbour. (So how will you implement it well in the and out the watches?)
- Appropriate target clientele.
- Funding (to run the programs, pay the staff, maintenance, Volunteers self-fund their own

training in the main and any new additions should be incorporated within existing training courses as a subset).
- Many other perceived/assumed limitations put up by inexperienced non-believers. They need to reach out to their peers.
- The variation of guest crew. They can range from disabled (blind, deaf, physically or mentally disabled), through to educationally excluded youngsters to youngsters with a keen interest.
- Type of vessel that the organisations operate.

Despite these limitations, the evaluation provided by participant one in Table 1 suggests that generally a Sail Training vessel is   not as problematic as first perceived. Both participants agree that some limitations such as sea sickness and weather conditions are unavoidable and as identified in Items 7 and 8 on Table 1; however participant two does also suggest that prior preparation and provision backup materials, along with positive encouragement to participate in activities are key contingencies to overcome such unavoidable circumstances. Nevertheless, it could also be suggested that as well as flexibility; prior preparation an enthusiastic attitude to overcoming challenging situations are the main attributes a facilitator needs to deliver a

successful education programme in general on board a sail training vessel.

Items 1, 2, and 5a-c are common challenges faced by professional educators within a land based learning environment and therefore ought to be seen as a significant challenge if specialist staff are invited on board to deliver marine environmental education activities. However, Items 3a-c address the situation of non-specialist/ professional educators delivering the educational activities and both participants highlight worthy considerations to considered when planning a marine environmental education programme in a sail training environment .

In respect of the watch system both participants suggest that Item 6 is also not a major challenge. Likewise, Item 9 also indicates that the need for flexibility is essential as well as been mindful of the young person's ability levels due to conducting strenuous activities during watch periods, which could assist with symptoms of fatigue .

With regard to the delivery of a marine environmental education programme on board a sail training vessel, it could be suggested that Item 7 is a limitation out of the accessibility of the facilitator although it could have a significant impact on the number of young people on board with the opportunity to participate in the activities .

Item	Identified limitation	Participant 1	Participant 2
1.	Range of educational background, experience and previous knowledge – will be educating at a wide range of levels.		Similar issues addressed with sail training itself. Not an immediate issue as more experienced crew can assist the less experienced. Also, depending upon the depth of the programme content marine specialists could be used to deliver the education programmes. At an minimum, aim to have the basic programmes/ activities written by marine science/ environment specialist.
2.	Could be limited time to deliver such a programme, especially on a short voyage.	Could be overcome by setting programme stages and utilising a three watch system with a 'shadow' watch (see **Error! Reference source not found.**).	Make the education programme to suit time available on board and duration of the voyage. Possibly suggest a minimum voyage length of seven days for general awareness education (the more in-depth, the longer the voyage required). Activities can be conducted as an option to watch members (during off watch periods). Could provide something constructive and fun for the young people to do to reduce the risk of boredom.
3a.	Expertise of the crew could be limited in such areas.	Personal interest of the ship's crew is probably a bigger factor then one would think (crew are there to sail a sailing vessel).	Could be an issue if there were no specialist staff on board to facilitate.
3b.	Crew need to be trained as well about the subject or you need to take crew with you on board who know enough from the subject.		Activities could be made for various levels. Level of ability delivered would depend upon the ability and knowledge of the facilitator. Crib sheets for facilitators could also be created to assist those with limited marine environmental knowledge (e.g. Youth Mentors).
3c.	Trained personnel		
4.	Transportation – getting young people to the		Other than pre-arranged transport by the school/ youth group/ sponsor or the sail

	boats!		training organisation head office, not much more can be done to overcome. But this type of transportation organisation would need to be at the discretion of the sponsor/ sail training head office. Could be included into the cost of the voyage for the young person – however, voyages are already expensive (could this additional cost deter young people, very much depends on if the Head Offices could arranged discounted contracts. But then you have the issue of regularity of visiting ports etc. to consider).
5a.	Limited learning resources – not guaranteed availability of power point projectors, TV/ DVD players etc.	Not really as problem – many vessels have projectors, laptops, TV and DVD players on board in the mess or available for use by the ship's permanent and volunteer crew to assist with guest crew training.	If available on board, this is a distinct advantage. However if not, suggest to facilitators to have a 'Plan B' e.g. a provision of resources brought with them. Have an education resource pack on board available at all times for all to use in hard copy. Also, at present internet connection is limited to not available once at sea (do not rely on online resources to be available). Failing all that – improvise with usable resources on board.
5b.	Facilities and equipment		See participant 1. Also limited amount of storage for reference materials (see below).
5c.	Reduced access to reference materials/journal articles.		It depends on the level of the target market and the ability of the ship's crew. If programme of an academic/ formal nature, suggest pre-voyage background reading. If facilitators have access to reference materials/ journals (e-copies for transportation ease), they could possibly bring a suitable collection on board to be used during the programme.
6.	The watch system and 'all hands on deck' duties – takes an overriding precedence however, from the view of an educator aiming to deliver a set of activities, there is a potential conflict of interest	Not an issue if programmes are ran in off watch periods only. All hands on deck duties not always required depending upon the watch system used on board. Not much can be done especially if sea conditions are rough which may preclude sit down study. However, have a backup of activities that are suitable for delivery in the mess in case the weather is too wet/ rough to deliver on the weather deck (should the guest crew wish to participate during these	Watch system not too much of an issue – deliver activities during off watch periods. If 'all hands on deck' duties occur on a vessel, conflict may arise as these could disrupt/ delay MEE activities. Check with the OOW whenever possible if time slot is suitable, and don't be too ridged with the activity timetable.
7.	The weather – bad weather, big swells etc. can limit the ability to deliver practical activities due to the safety risks of the crew		
8.	Sea sickness		

		conditions). Unavoidable. However, encourage young people to join in as it will take their mind off feeling ill and disorientated.	
9.	Watch schedule demanding of student's time and energy-little time for lengthy reading or research.		Possibly focus upon practical, applied learning methods, removing the emphasis on reading and theoretical research on board. Use reading and research as a support tool (if required) opposed to a focal point of programme delivery. Also by using applied and practical methods, aims to maintain a 'fun' element to the programme.

Table 1: Analysis of the Limitations of teaching/ educating on board sail training vessels provided by the online questionnaire

3.2. Methods of overcoming these limitations.

One other suggestion that was identified was the possibility of extending the duration of the voyages. For example, rather than delivering three - fourteen day voyages as seems to be common in the European and Australasian sectors, possible consider delivering voyages of 20 - 90 days in duration, similar to the programmes delivered by USA providers such as Sea-Mester[8].

It could be suggested that Items 1, 4, 5 and 9 of Table 2 are all related to the planning stages of a marine environmental education programme; and as identified in the participants' responses relate to the evaluations of Items 3a-c and 5a-c in Table 1.

Item 3, although it could be a solution regarding participation, it does suggest the loss of the voluntary element of the programme. As commented by Participant one regarding Item 4, it can be difficult to force individuals to participate in activities that they do not wish to do. In addition, as the Sail Training concept aims to develop attributes Such as[3-7,9]:
- Increased Self confidence
- Increased Self esteem
- Increased Motivation
- More tolerance
- The opportunity to display talents
- Enhanced teamwork skills
- Enhanced communication skills
- Encourages learning overall
- Creates a positive environment
- Identifies previously unknown career opportunities
- Staying out of trouble (regarding youth offending)
- Promotes a healthier, more active lifestyle
- Gaining respect for others (and oneself)
- Improved life skills overall
- Manage diversity and homogeneity on a daily basis,
- Recognise the value of instrumental interpersonal relationships
- Develop new friendships
- Gain appreciation of the social value of rules, regulations and authority
- Develops a greater awareness of the civic society at large.

It could be proposed that by 'forcing' involvement could in turn reduce the opportunities of personal development for young people; in effect the young people 'losing their voice and independence'. The significance of a voluntary programme is that the people participating want to learn and possibly engaging at a higher level, gaining a more rewarding experience.

Item	Identified method	Participant 1	Participant 2
1.	Ensure that a programme is developed that can be delivered by non-specialists and will meet a range of needs.	See Table, No 3a-c	Compare learning environments (preparing for the difference between a land based classroom and a sea based classroom); programme writers could break down technical materials so it is easier for non-marine environment specialist facilitators to deliver.
2.	Ensure that a good mix of different activities and teaching styles meet the needs of a range of learners.		Similar to how sail training tends to be delivered, adopt constructivism and scaffolding techniques and design activities for the four learning styles.
3.	Ensure that delivering on such topics is a non-negotiable part of the voyage.		In corporate into an 'inter watch competition' model similar to that delivered on board TSYT vessels. This would also develop teamwork, competitiveness and maintain a fun element to the programme.
4.	To handover good training (conferences, at the start of the Tall Ships Races, other ways in advance)	Maintain that's optional, difficult to force people to do things they don't want to do.	Are there opportunities available to promote at various Sail Training conferences? Could use race events to deliver promotional talks. However, may be too hectic to conduct beforehand.
5.	Handover a practical and nice handbook for crew and trainees on board with easy to doing things with the stuff you have on board or the items who will be in the "kit"		See Table, Nos 3a-c and 5a-c; **Error! Reference source not found.**, Nos 1 and 2.
6.	Website or app with all the stuff and questions and information etc. (to use in the harbour)	Not necessary if delivered on board	This could assist and promote prior and after voyages, increasing public outreach opportunities. Could also improve school support as teachers could use such resources to overlap project content between their curricula scheme of work and on board programme.
7.	Funding	See Table, No 1	Possibility of sponsored activities/ topic by corporate organisations/ charitable donations. Ability to use resources and activities already available on the internet.
8.	Training of the ship's crew	This is not required as it is the role of the education facilitator.	
9.	Faculty need to plan thoughtfully to have as many good source materials available as possible. Broadband satellite internet access from sea becoming more affordable-could completely eliminate this challenge in 5 years.		See Table, Nos 3a-c and 5a-c; **Error! Reference source not found.**, No 1 and 2.

Table 2: Analysis of the methods of overcoming the limitation provided by the online questionnaire

3.3. Hazard awareness – key differences between a land based and a sea based delivery platform?

Hazards suggested that were provided by the online questionnaire during the researcher's sea phase of research were:

- All the same hazards as with basic sail training, plus those specific to the educational programme selected - e.g. working near hydro-wire/ hydro-winch, chemical exposure etc.).

- Inherent hazards found on the sailing vessel, including the need to climb aloft in a range of sea and light conditions
- A sea based delivery platform can be more 'real' and provide the opportunity to up parts of the syllabus when the timing and location is appropriate.

The identified hazards that were evaluated during the on board discussion are listed in Table 3.

Item	Hazard identified	Participant 1	Participant 2
1a.	Constant movement of the vessel and potentially flying objects.		Ensure that items are adequately stowed. Constant movement is something that you get used to. However, programme designers need to be mindful that not all activities conducted in land based establishments are suitable on board a ship (the movement and confined space).
1b.	Ship's equipment: sheets and halyards, blocks, potentially explosive materials, the rigging, life rafts. All things required to maintain a safe working environment in terms of a seafarer, however potentially dangerous if a 'safety first' attitude is not maintained at all times and taken into consideration when activity planning	Unavoidable – part of life on board	When using/ demonstrating hazardous activities/ equipment ensure that a responsible adult is present at all times (especially if there is a risk that young people may tamper with ship's equipment if unattended). However, a degree of trust is also required – assess each situation accordingly. Always discuss with the officers on board to obtain authorisation to conduct activities, especially when using shipboard equipment.
1c.	Potentially slippery decks/ ladders		Part of hazard awareness on board but be mindful when planning activities. If decks unsuitable consider below deck activities
2a.	The environment and the inability to get off once the mooring lines have been released!		Culture shock and "cabin fever" can alter a person's behaviour and actions. Plus working with mixed age and background young people – behaviour can be erratic due to been in confined living space with new people (need to be mindful of any long term behavioural issues etc).
2b.	Psychological effects on young people of been contained in an 'alien' environment – cabin fever, home sickness etc can induce erratic and potentially hazardous behaviour.		Have coping strategies and flexibility in the activities, altering delivery method if significant behavioural problems occur. It is paramount to contain problems and overcome conflict in the first instance when the issues are small; rather than ignore them and let them escalate.
3.	Weather	See Table 1, No 6	
4	Exposure	Can accelerate fatigue.	

3.4 What would be the most suitable delivery pattern for activities?

The results from the online questionnaire identify that the sample would prefer to see a flexible approach adopted in the delivery of marine environmental education programmes (46%). This was closely followed by 39% preferring the delivery of the same activity two to three times a day to each individual watch (see Table 4 and Figure 2). The option of delivering activities to the whole crew appeared to unpopular with only two votes (15%). The on board analysis highlighted potential reasons are identified in Table 5.

Delivery pattern	No of participants choosing this option
Flexible approach - activity sheets, ad-hoc practical tasks, 2-3 formal activities during a voyage	6
The same activity, 2-3 times a day, individually delivered to each watch	5
Whole crew brought together for 30-60 minutes per day	2
Total	**13**

Table 4: What would be the most suitable delivery pattern for activities?
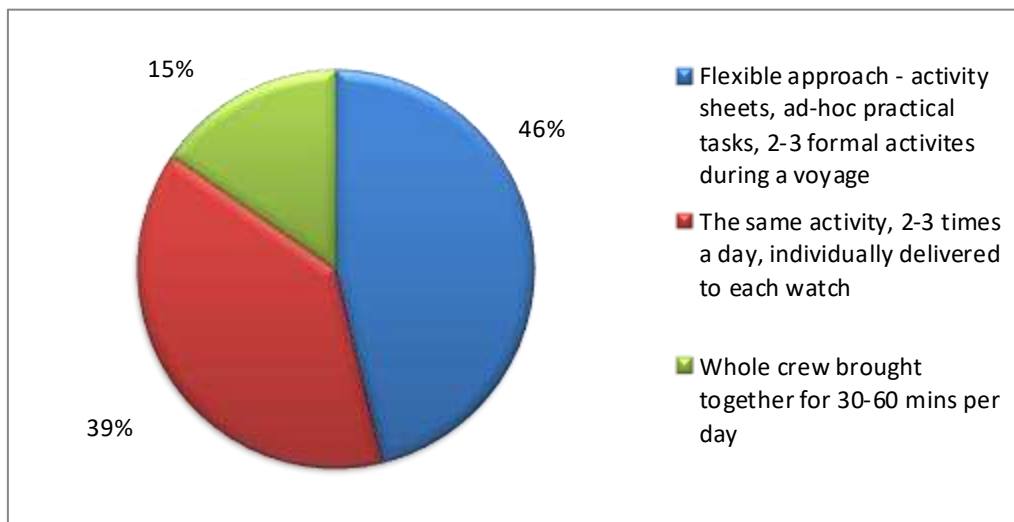

Figure 2: Percentage split of participants views regarding what would be the most suitable delivery pattern for activities.

Delivery option	On board participants analysis
Flexible approach - activity sheets, ad-hoc practical tasks, 2-3 formal activities during a voyage	Can be undertaken on a day by day basis as advised by the Officer of the Watch.
The same activity, 2-3 times a day, individually delivered to each watch	Could be most effective for ensuring delivery to all watches, especially if 'shadow' watch approach adopted.
Whole crew brought together for 30-60 minutes per day	Inconvenient for the watch system. Heavy reliance of available permanent/ volunteer crew to man the watch positions while activities are conducted.

Table 5: Analysis of the suggested approached to programme delivery option as suggested in the online questionnaire.

By combining the results of the online questionnaire and the on board analysis; it could be suggested that adopting the shadow watch system (see Table 1, No 2) would be the most suitable approach to marine environmental education programme delivery.

4. Conclusion

The suitability of the tall ship environment for delivering marine environmental programmes could be perceived as having many limitations. Particularly regarding educating on board sail training vessels in relation to the hazards that need to be considered compared to a land based classroom. However, the evaluation provided by the two participants of the on board analysis suggest that although it is wise to be mindful of these limitations and hazards; they do not pose impossible hurdles.

References

1. Clipper Stad Amsterdam (2012). The origin of Clipper Stad Amsterdam. Retrieved from the Stad Amsterdam website: http://www.stadamsterdam.com/en/common/ship/originclipperstadamsterdam.xml
2. Clipper Stad Amsterdam (2012). Beagle 2009: Stad Amsterdam follows Darwin's Beagle trip. Retrieved from Stad Amsterdam website: http://www.stadamsterdam.com/en/common/news/2012/Beagle.xml
3. Finkelstein, J. (2006). Sailing into the future: Final Report on ARC Linkage Research Project 2002-2005 between Young Endeavour Youth Scheme and the University of Sydney. Sydney, NSW, Australia: Young Endevour Youth Scheme.
4. Gordon, S., Harcourt-Smith, K., Hay, K., & Priest, S. (1993). Case study of "Blue watch" on STS Leewin. Journal of Adventure Education and Outdoor Leadership, 13(1), 4-7. Retrieved from Sail Training International website: http://www.sailtraininginternational.org/ uploads/documents/Research/LeeuwinCaseStudy1993.pdf
5. McCulloch, K. (2007). Living at sea: learning from communal life aboard sail training vessels. Ethnography and Education, 2(3), 289-303.
6. Nash, S. (2008). Motiv8 (in partnership with Hampshire Police): Life chances for young people. Retrieved from ASTO website: http://www.asto.org.uk/images/stories/Sailtrainingworksevidence/presentation%20to%20asto%20jan%202011.pdf
7. Norris, R. M., & Weinman, J. A. (1996). Psychological change following a long sail training voyage. Personality and Individual Differences, 21(2), 189-194.
8. Sea-Mester (2012). Start your trip. Retrieved from the Seamester website:

http://www.seamester.com/upcoming-voyages/?when=&days=&dest=

9. Tall Ships Youth Trust. (2012). Youth work. Retrieved from Tall Ships Youth Trust website: http://tallships.org/about-us/youth-work/