Imagining a Blue Future: The Blue Economy and Social Values in the Illawarra Region

Itzel Gonzalez

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Abstract
The Blue Economy is a new and contested concept which refers to the sustainable development of the oceans. At present there is no agreement around what marine and ocean industries can legitimately be considered a part of the Blue Economy. As efforts to grow the Blue Economy expand around the world, including in NSW, this project aimed to explore how values might influence community acceptance of ocean industries. Community support for the economic use of ocean resources is often tenuous. Existing scholarship tends to assess community acceptance of industries in a reactive way, after projects have commenced. This research used a forward looking approach, which attempted to foresee or predict how communities might respond to different types of Blue Economy activities, based on their underlying values. Three research questions guided this project: 1. How do values influence community acceptance in relation to the different sectors of the Blue Economy? 2. Which ‘Blue Economy’ sectors will people accept within their community? 3. Where would local stakeholders like Blue Economy activities placed in their community? A mixed method qualitative approach was taken incorporating sketch mapping, semi structured interviews, and crowdsourcing. This approach revealed a preference for non-economic values amongst research participants, especially aesthetic, recreational and therapeutic values. Research participants also expressed a spectrum of support for different marine industries, ranging from approval of tourism and renewable energy, through to complete rejection of extractive industries like mining. Values were seen to interact in complex ways, including through trade-offs, thereby influencing the level of support that participants had for different sectors. These findings suggest that community narratives oppose overtly economic readings of the Blue Economy. Wider environmental benefits were prioritised over other values. In addition qualitative mapping was found to be a useful tool through which to capture social values and provide insights into how communities might respond to different types of development and broader Blue Economy planning.

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Itzel Echeverria Gonzalez

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Abstract

The Blue Economy is a new and contested concept which refers to the sustainable development of the oceans. At present there is no agreement around what marine and ocean industries can legitimately be considered a part of the Blue Economy. As efforts to grow the Blue Economy expand around the world, including in NSW, this project aimed to explore how values might influence community acceptance of ocean industries. Community support for the economic use of ocean resources is often tenuous. Existing scholarship tends to assess community acceptance of industries in a reactive way, after projects have commenced. This research used a forward looking approach, which attempted to foresee or predict how communities might respond to different types of Blue Economy activities, based on their underlying values. Three research questions guided this project: 1. How do values influence community acceptance in relation to the different sectors of the Blue Economy? 2. Which ‘Blue Economy’ sectors will people accept within their community? 3. Where would local stakeholders like Blue Economy activities placed in their community? A mixed method qualitative approach was taken incorporating sketch mapping, semi structured interviews, and crowdsourcing. This approach revealed a preference for non-economic values amongst research participants, especially aesthetic, recreational and therapeutic values. Research participants also expressed a spectrum of support for different marine industries, ranging from approval of tourism and renewable energy, through to complete rejection of extractive industries like mining. Values were seen to interact in complex ways, including through trade-offs, thereby influencing the level of support that participants had for different sectors. These findings suggest that community narratives oppose overtly economic readings of the Blue Economy. Wider environmental benefits were prioritised over other values. In addition qualitative mapping was found to be a useful tool through which to capture social values and provide insights into how communities might respond to different types of development and broader Blue Economy planning.
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Chapter 1. Introduction

Image 1. Overlooking Cliff road: the Wollongong rock pool
1.1 Background

The Blue Economy is a sustainable development model based on the oceans. It recognises both the economic potential of the oceans and their growing threats, such as climate change, ocean acidification, sea-level rise, and other environmental concerns (Winder & Heron 2017; Silver et al. 2015). This idea attempts to reinvent how the ocean and coast are used for economic benefit. Silver and colleagues (2015) identify three motives for the development of the Blue Economy: first, the monumental extent of the ocean and importance of oceans for development. Ocean industries, such as commercial fishing and deep sea mining are growing industries that rely directly on the ocean. Second, the ocean is not bound by national jurisdiction. Lastly, a number of interested parties, state and private, are interested in the marketization and conservation of the ocean (Silver et al. 2015).

The Blue Economy is a new and exciting concept as it revolves around ocean-based industry opportunities, however must encompass environmental sustainability and social equity, along with economic growth. As this topic grows in popularity there is disagreement as to what industry or ocean-based development encompasses the three pillars of environmental sustainability, social equity, and economic growth. It is found that among Blue Economy actors the economic growth pillar often takes precedent over the other two pillars. This has led to competing discourses and definitions of what the Blue Economy should include.

This thesis seeks to take a proactive approach to what industries will be accepted in regards to the Blue Economy and where these industries should be developed. While Blue Economy thinking is growing in popularity globally and here in the Illawarra, there is scant research on how local community members and stakeholders might support or reject Blue Economy projects. The study has two main objectives:

a. To explore the ways in which social values may influence the community responses to a growing Blue Economy,
b. To explore methods for incorporating social values into spatial planning.

In order to address these objectives I developed three research questions, to guide the research design and methodologies.

1. How do values influence community acceptance in relation to the different sectors of the Blue Economy?
2. Which ‘Blue Economy’ sectors will people accept within their community?
3. Where would local stakeholders like Blue Economy activities placed in their community?

1.2 Thesis Structure

Chapter two begins by outlining current knowledge about the Blue Economy and social values, and introduces the conceptual design of the project. Chapter Three outlines the methodological approach to addressing the research questions. Chapter Four addresses research question 1 by exploring the range of way in which people value the coasts and oceans. Chapter Five addresses research question 2 & 3 by using participatory mapping techniques to identify which sectors research respondents found acceptable in their region and where. Chapter Six addresses all three research questions by bringing together the findings of the values and industry analysis to explore the range of potential influences on social acceptability. Finally Chapter Seven summarises the findings and the strengths and limitations of the methodological approach for incorporating social values into Blue Economy planning.
Chapter 2. Literature Review

Image 2. Wollongong harbour
This chapter has two primary aims. Firstly it seek to review the existing literature relating to the Blue Economy and values. Secondly it introduces the conceptual framework through which this thesis has been developed. The chapter is structured into four sections. The first section provides an overview on the definition of the Blue Economy and the contention around its definition. The second introduces the concept of ‘values’, and how this concept is considered across a number of disciplines. This section includes a more detailed examination of social values and the way in which different ‘types’ of social values are categorized in the literature. The third section introduces the conceptual framework and makes links between values research and mapping. The final section introduces the concept of Qualitative GIS – the central spatial method deployed in this research.

2.1 What is the Blue Economy?

The term Blue Economy was introduced in the 2012 at the Rio+20 Conference and has gained global attention since then (Smith-Godfrey 2016). The concept is highly contested as there is no clear definition for the Blue Economy, nor an agreed upon goal (Eikeset et al 2018; Smith-Godfrey 2016; Silver et al. 2015). The Economist’s (2015) definition includes a sustainable ocean economy that is resilient while simultaneously providing economic growth. While other definitions include “the sustainable industrialization of the ocean to the benefit of all” (Smith-Godfrey 2016, p. 60). Most definitions make reference to “triple bottom line” objectives of environmental sustainability, economic growth, and social equity, supported by innovation and technology to create a sustainable ocean-based economy (Eikeset et al 2018; Keen, Schwarz, & Wini-Simeon 2017; Voyer et al. 2018).

The Blue Economy is often considered a subset of the larger ‘ocean economy’. The ocean economy is often referred to when attempting to define the Blue Economy and is generally a less contested term. The ocean economy incorporates all industries that rely on the ocean for inputs, economic growth and profit (Voyer & van Leeuwen 2019). The ocean economy includes several sectors such as
fisheries, aquaculture, resource extraction (such as mining and oil and gas), shipping, ports, tourism, recreational fishing and protection and management industries (such as research) (The Economist 2015).

Advocates of the Blue Economy concept argue that this new approach to ocean development differs from ‘business as usual’, through the explicit consideration of ecosystems, marine life, and environmental management and social equity in ocean based development narratives (Eikeset et al 2018; Graziano et al. 2019). The concept has been steadily developing momentum as countries around the world come to realize the economic potential of their ocean jurisdictions, at the same time as recognition grows of the range of environmental threats the world’s oceans face, including climate change, habitat loss, unsustainable fishing practices and pollution (Smith-Godfrey 2016). Within this context of climate change and increasing environmental degradation, the Blue Economy is promoted as a tool to create economic growth whilst also maintaining or improving ocean ecosystem health (Keen, Schwarz, & Wini-Simeon 2017).

Critics of the Blue Economy argue, however, that the excessive emphasis is currently being placed on economic objectives, at the expense of environmental sustainability and social equity (Hadjimichael 2018). As such, a significant area of contestation in the Blue Economy literature is what should or should not be classified as a Blue Economy activity. For example, it is often debated as to which sectors should be considered as legitimate components of a Blue Economy. Some actors argue that extraction of resources, such as sea bed mining, and fisheries should not be included in the Blue Economy as those sectors deteriorate the environment (Graziano et al 2019; Hadjimichael 2018). Others consider all aspects of the ocean economy need to be considered within the Blue Economy model (Voyer et. al, 2018).

These differing perspectives around what constitutes the Blue Economy have been recognized and categorized in the literature. Voyer et al (2018) identified four Blue Economy ‘lenses’ building on
earlier work by Silver et al (2015). ‘Ocean as natural capital’ focuses on conservation and protection; while ‘oceans as good business’ prioritizes economic growth and global markets. ‘Oceans as livelihoods’ concentrates on food security and poverty and ‘Oceans as a driver of innovation’ focuses on technological and technical innovations and new oceans uses, such as renewable energy source (Silver et al. 2015; Voyer et al. 2018).

Despite the different understandings of the Blue Economy, there are also a number of commonalities in the way the concept is being ‘operationalized’, or put into practice. There are two primary tools often employed to advance Blue Economy development. These are valuation studies and Marine Spatial Planning (MSP). Each of these two approaches are explained in further detail in the following sections.

2.1.1 Valuation studies

Voyer et al (2018) found that valuations studies were central to all the lenses of the Blue Economy within their study, although the emphasis of these studies varied. In all cases these studies involved quantifying the value of the natural capital provided by the oceans, and the ‘oceans as good business’ lens particularly focused on valuation of the ocean sectors and industries (the ocean economy). In this context valuations studies usually focused on calculating monetary values of natural assets and the costs of ‘externalities’ or the environmental impacts of poor management or use. This form of ‘ocean accounting’ is designed to provide a common language to assist in informing management actions (Colgan, 2016, Ebarvia, 2016, Patil et al., 2016, Mulazzani and Malorgio, 2017), but has been criticised as a form of neoliberalization of nature (Castree, 2010).

2.1.3 Marine Spatial Planning

In addition to valuation studies, MSP was commonly referred to across all the different interpretations of the Blue Economy (Voyer et al 2018). MSP form of ocean mapping which allocates different zones for different types of use and is seen as a tool through which competing and
sometimes conflicting activities can be planned and managed (Jay et al., 2012, Papageorgiou, 2016, Crowder et al., 2006, Agardy et al., 2011). Recently, concerns have been raised in the literature around the potential role of MSP in facilitating ‘ocean grabbing’, whereby traditional or cultural uses are ‘pushed out’ by more powerful economic interests with negative impacts on livelihoods and wellbeing (Bennett et al., 2015). In addition, some MSP processes have been criticised for favouring economic development interests over conservation objectives (Jones et al., 2016).

2.1.4 Social equity and the Blue Economy

Whilst the literature on the Blue Economy has varied definitions and ideas of what is included within the Blue Economy, a common critique is that social equity is often overlooked (Cisneros-Montemayor et al., 2019, Bennett et al., 2019). In particular is remains unclear as to how the aspirations, values and beliefs of local communities are currently being considered within Blue Economy planning and development. In addition the primary tools through which the Blue Economy is currently being pursued, valuation studies and MSP, have also been critiqued for placing excessive emphasis on economic objectives as the expense of social and environmental objectives. The following section will explore the importance of ‘values’ in environmental management.

2.2 What are ‘Values’?

The concept of values arises in various disciplines (Chan, Satterfield, & Goldstein 2012; McIntyre, Moore, & Yuan 2008). Disciplines as diverse as environmental science, political science, education, anthropology, psychology, theology, and sociology all recognise the importance of understanding and considering values (McIntyre, Moore, & Yuan 2008; Song, Chuenpagdee, & Jentoft 2013). This section will consider the concept of ‘values’ through two disciplinary lenses – economic and sociological.
2.2.1 Values in economic literature

Within Blue Economy literature the primary way in which values are considered, researched and articulated is through an economic disciplinary lens. Economic values are monetary values in which a price is assigned to an object, activity or asset (Bockstael et al 2000). Economic values are used with market services or commodities such as timber or fossil fuel; however, non-market values such as ecosystem services that benefit human wellbeing can also be monetized (Bockstael et al. 2000).

Economic literature conceptualises values in a variety of ways, including via market and non-market valuation approaches. Market values, include ‘use values’, and are tangible, thus tradeable or able to be commodified into a monetary value (Hannemann 1994). Market valuation in the context of the Blue Economy usually involves using national accounts data, such as that gathered through census and other statistics, to estimate the contribution of marine industries to national and global economies (Kildow and McIlgorn, 2010).

Non-market values refer to values for which no tradeable market exists, and includes ‘non-use’, or passive values. These values are often intangible and are sometimes referred to as existence, or intrinsic, values. Aspects of the natural environment, for example, may be valued primarily for their existence and not the commodities than can be gained from them (Hannemann 1994).

Economic research into non-market values relies on economic modelling approaches, including contingent valuation modelling, a common non-market valuation technique for environmental goods or natural resources (Carson, Flores, & Meade 2001; Hanemann 1994). Otherwise known as the ‘willingness to pay’, this approach seeks to ‘standardise’ measurement or assessment of different values into a common metric, usually economic values. Researchers use quantitative survey methodologies to understand what individuals are willing to pay for a certain commodity (Carson, Flores, & Meade 2001). Surveys can also posit hypothetical environmental programs to uncover the willingness to pay (Portney 1994). Additionally, surveys can ask how the hypothetical program would influence voting intentions (Portney 1994). This allows researchers to look at both
use values, monetary values, and non-use values, which are unrelated to consumption (Hanneman 1994). Historically, passive values were ignored as they cannot be easily monetized – and were thus considered irrelevant to decision making – however, passive values may also be measured through contingent valuation (Carson, Flores, & Meade 2001).

Within the Blue Economy literature there is significant emphasis on valuation of ecosystem services, and especially the non-market values ecosystem services provide (Bryan et al. 2010; Gee & Burkhard 2010). Ecosystem services are benefits humans gain from the natural environment (de Groot, Wilson, & Bourmans 2002). Ecosystem services values are often assigned into broad categories of use and non-use values (Brown, Hausner, & Laegreid 2015). The ecosystem services models create several functions that benefit humans and uses both direct market valuation and indirect market valuation (de Groot, Wilson, & Bourmans 2002, Costanza et al. 1997). The indirect market valuation uses the ‘willingness to pay’ technique (de Groot, Wilson, & Bourmans 2002). This model is critiqued because it focuses on economic value and does not investigate intrinsic values of nature (Milcu et al, 2013; Schroter et al. 2014). Cultural ecosystem services valuation over emphasises recreation and ecotourism values (Milcu et al. 2013). It is argued that monetary values placed on ecosystem services assists the decision-making process (Schroter et al. 2014). This has led to the critique that the ecosystem services model tends towards a primary focus on assigning utilitarian value to natural resources (Brown, Hausner, & Laegreid 2015; Chan et al. 2012; Milcu et al. 2013).

2.2.2 Values in sociological literature

Other bodies of literature conceptualised values through a more sociological lens, classifying values into broad categories and exploring the way in which they interact with attitudes and responses to management interventions in areas such as fisheries and marine protected areas (Klain & Chan 2012; Blake, Auge, & Sherren 2017). To date social values have had limited consideration within Blue Economy literature.
Social values are complex; however, strongly influence the ways in which people respond to, understand and interpret the natural world and its uses (Jones et al. 2016). Social values are intangible and are associated with moral concerns, what is desirable, or importance/attachment of objects or places (Blake, Auge, & Sherren 2017; Klain and Chan 2012; Song, Chuenpagdee, & Jentoft 2013; Voyer et al. 2015). Values often manifest themselves in ways that make people identify with particular places and influence peoples’ ideas on industries and government decisions (Voyer et al. 2015). Moreover, social values are not mutually exclusive, and people can hold a variety of different, sometimes conflicting, values (Blake, Auge, & Sherren 2017).

Understanding values allow planners and researchers to gain insight into attitudes, beliefs, and perception of certain places, infrastructure or activities (Bryan et al. 2010; Plieninger et al. 2013; Voyer et al. 2015). Scholars acknowledge that environmental concerns and attitudes can often be driven more by values than by rationality or ‘facts’; therefore, it is recommended that community members’ values are assessed during planning processes (McIntyre, Moore, & Yuan 2008). Furthermore, understanding a community’s social values permits understanding of where environmental values align with what is expected from institutions; thus increasing the likelihood of gaining community support (Jones et al. 2016; Nam & Hwang 2018; Voyer et al. 2015).

Much of the literature on social values focuses attention on the categorisation of value typologies. At the broadest level values can be categorised as held and assigned (Brown, Hausner, & Laegreid 2015; Chan, Satterfield, & Goldstein 2012; McIntyre, Moore, & Yuan 2008). Held values are what are important to the person through preferences and underlying ideals; while assigned values are people’s perception of why that feature is important (Brown, Hausner, & Laegreid 2015; Bryan et al. 2010; Chan, Satterfield, & Goldstein 2012; McIntyre, Moore, & Yuan 2008). Additionally, held values are fundamental values, which are ranked in order of importance (Song, Chuenpagdee, & Jentoft 2013). Assigned values are those allocated to an object due to its benefit or worth (Song, Chuenpagdee, & Jentoft 2013). Place specific values have been defined as assigned values because
people assign to locations due to associations with the location causing them to attach meaning to
the location (Brown, Hausner, & Laegrid 2015; Zhu et al. 2010).

Two approaches to categorizing values were identified as axiomatic and relativistic (Satterfield &
Kalof 2005; Song, Chuenpagdee, & Jentoft 2013). The axiomatic approach interprets certain values
as superior to others; while relativistic sees all values as equal, with no morally correct values (Song,
Chuenpagdee, & Jentoft 2013). Values categorized through the axiomatic approach are calculated
through measurements and arguments by experts from economics, philosophy, and ethics
(Satterfield & Kalof 2005). The relativistic approach is used by researchers to understand preferences
and public beliefs for policy and management (Satterfield & Kalof 2005).

Beyond these broad, overarching classifications a number of environmental scholars have devised
more detailed social value typologies found in relation to environmental and coastal issues. These
typologies display a high degree of consistency despite their different applications. Table 1
summarises the main typologies found within the literature grouped into thematic areas. The right-
most column lists the summary theme I devised from reading across these literatures and the field
data.

2.2.2.1 Aesthetic:

Aesthetic value was one of the most common values listed in the literature, and was often found to
be strongest when it comes to motivating community members (see Table 1). The environment is
often seen as beautiful and aesthetically pleasing, which is why many people value certain locations
(Gee & Burkhard 2010; Kellert 2005). This theme includes visual appeal, sounds, and smells (Brown
& Reed 2000). In coastal research, Voyer and colleagues (2015) subsumed aesthetic concerns under
the banner of ‘the good life’ – alongside appreciation of, knowledge, conservation and unrestricted
access to the coast (Voyer et al. 2015). Community members often feel a sense of obligation to keep
the coast pristine and maintain its aesthetic appeal (Chan, Satterfield, Goldstein 2012). People
regularly oppose industrial development in or near the ocean as it obstructs the view; thus losing aesthetic appeal (Gee & Burkhard 2010).

2.2.2.2 Recreation

Values relating to recreation and tourism were also found across all the typologies studied (see Table 1). Recreational values include activities such as swimming, walking along the beach, surfing, and is a reoccurring theme associated with large bodies of water (Gee & Burkhard 2010; Kellert 2005). Dominionistic values fell under recreation as it is for those who want to control the natural elements of the coast or master them for their own enjoyment (Kellert 2005). Additionally, those who identified with ‘the good life’ category or dominionistic often enjoyed the coast for recreational use such as surfing, sailing, or fishing (Voyer et al. 2015). This value inhibits industrial activity in an area as it may intrude upon activities such as swimming, surfing, and walking along the coast (Gee & Burkhard 2010; Pleninger et al. 2013).
### Table 1. Value coding from literature

<table>
<thead>
<tr>
<th>Authors</th>
<th>Scenic Areas</th>
<th>Recreation</th>
<th>Income</th>
<th>My Theme</th>
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</thead>
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<tr>
<td>Brown, Hausner &amp; Laegreid 2015</td>
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<td>Recreation</td>
<td>Ecotourism</td>
<td>Scenic Areas</td>
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<td>Plieninger et al. 2013</td>
<td>Aesthetic</td>
<td>Recreation</td>
<td>Ecotourism</td>
<td>Scenic Areas</td>
</tr>
<tr>
<td>Gee &amp; Burkhard 2010</td>
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<td>Recreation</td>
<td>Economic</td>
<td>Recreation</td>
</tr>
<tr>
<td>Zhu et al. 2010</td>
<td>Aesthetic</td>
<td>Recreation</td>
<td>Good life</td>
<td>Recreation</td>
</tr>
<tr>
<td>Voyer et al. 2015 and Song, Chuenpagdee, &amp; Jentoft 2013</td>
<td>Better world</td>
<td>Recreation</td>
<td>Good life</td>
<td>Recreation</td>
</tr>
<tr>
<td>Kellert 2005</td>
<td>Aesthetic-beauty</td>
<td>Recreation</td>
<td>recreational</td>
<td>Recreation</td>
</tr>
<tr>
<td>Bryan et al. 2010</td>
<td>Aesthetic</td>
<td>Recreation</td>
<td>Economic</td>
<td>Economic</td>
</tr>
</tbody>
</table>

- Aesthetic
- Recreation
- Ecotourism
- Economic
<table>
<thead>
<tr>
<th>Education</th>
<th>Education</th>
<th>Learning</th>
<th>Good life and Outward Aspirations</th>
<th>Better World</th>
<th>Scientific – study of biological processes</th>
<th>Learning and knowledge</th>
<th>Learning/knowledge Informal and formal</th>
</tr>
</thead>
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<tr>
<td>Knowledge systems</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Spiritual</td>
<td>Spiritual</td>
<td>Spiritual</td>
<td>Spiritual</td>
<td>Good life</td>
<td>Moralistic – spiritual connection</td>
<td>Spiritual</td>
<td>Spiritual</td>
</tr>
<tr>
<td>Therapeutic/health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Personal virtues/well-being</td>
<td>Naturalistic – satisfaction when emerged in nature</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Good Life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identity</td>
<td>Sense of place</td>
<td>Sense of place/identity</td>
<td>Future</td>
<td>Personal virtues/well-being</td>
<td>Humanistic- emotions attached to the coast</td>
<td>Sense of place</td>
<td>Sense of identity</td>
</tr>
<tr>
<td>Cultural heritage/identity</td>
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<td>Cultural diversity and cultural heritage</td>
<td>Heritage</td>
<td>Outward Aspirations</td>
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</tbody>
</table>

- **Social**
  - Social relations
  - Social relations
  - Personal virtues/well-being

- **Inspirational**
  - Inspiration
  - Intrinsic

- **Naturalness-untouched/undisturbed**
  - Life sustaining
  - Better world
  - Intrinsic-untouched
  - Life sustaining
  - Pristine-untouched
  - Unspoiled

- **Biological Diversity**
  - Biological diversity and wilderness
  - Outward Aspirations
  - Biodiversity and wilderness
  - Wilderness-appreciation of wildlife/animals
<table>
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<th>Cultural disservices</th>
<th>Better World</th>
<th>\text{Negativistic-fear/awe threats}</th>
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<tr>
<td>Noisiness</td>
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<tr>
<td>Negative-littering, spoiled etc</td>
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</table>
2.2.2.3 Economic

The literature often includes tourism with the recreation theme; however, tourism values focus overtly on the commodification of the coast for monetary benefit (Gee & Burkhard 2010; Kellert 2005). Brown and Reed (2000) identify tourism as economic in their typology. Under economic was also valuing the landscape because of industry and job opportunities such as fisheries (Brown & Reed 2000).

2.2.2.4 Education

Education, informal and formal, was identified in a variety of themes throughout the literature (Gee & Burkhard 2010; Plieninger et al. 2013; Zhu et al. 2010). Knowledge systems and educational values were both identified as both formal and informal education or learning systems in different cultures (Bryan et al. 2010; Gee & Burkhard 2010). Formal learning systems included the study of the biological and physical processes from observation or experimentation (Brown & Reed 2000; Plieninger et al. 2013; Zhu et al. 2010).

2.2.2.5 Spiritual

Another theme identified were themes centred around spirituality. Spiritual values were assigned to place of spiritual, emotionally, or religious importance (Brown, Hausner, & Laegreid 2015; Bryan et al. 2010; Gee & Burkhard 2010; Plieninger et al. 2013; Zhu et al. 2010). Moralistic values are those who have spiritual connection with the coast (Kellert 2005). Outward aspirations are values that for those who want a deeper connection with people or objects outside of themselves (Song, Chuenpagdee, & Jentoft 2013; Voyer et al. 2015). These values relate to those who want to connect with nature (Voyer et al. 2015). These values often strongly resonate with Indigenous people due to their connection with ancestors and country (Voyer et al. 2015). Indigenous people often believe nature to be sacred and feel that it must be protected (Chan, Satterfield, Goldstein 2012).
2.2.2.6 Therapeutic

Themes revolving around therapeutic and health were found in the literature. Places are valued because it contributes to improved physical or mental health through activities or gives them peace and harmony (Brown, Hausner, & Laegrid 2015; Zhu et al. 2010). Personal well-being category identifies with people who identify with the coast as a place that adds to personal satisfaction or well-being, which falls under therapeutic (Chan, Satterfield, Goldstein 2012; Song, Chuenpagdee, & Jentoft 2013; Voyer et al. 2015). Personal well being values identify with those who use nature to improve mental or physical health (Voyer et al. 2015; Song, Chuenpagdee, & Jentoft 2013). Additionally, Jones and colleagues (2016) identified naturalistic as improvement to mental health and feelings of relaxation. Values involving satisfaction in nature were included under the theme ‘naturalistic’. Those who have naturalistic values identify with the coast because of the direct satisfaction they receive while immersed in nature, such as walking along the beach (Kellert 2005).

2.2.2.7 Sense of identity

Sense of identity was identified for individuals that felt attached to the coast and have attached a part of themselves to a specific location (Gee & Burkhard 2010; Plieninger et al 2013). Areas are important to people because of the historical value that has influenced their understanding of their ancestry or where they consider ‘home’ (Brown, Hausner, & Laegreid 2015; Plieninger et al. 2013). Humanistic values also fall under sense of identity as it for those who appreciate the coast and have emotions attached to the coast; such as feelings of loss when the coast is destroyed (Kellert 2005).

2.2.2.8 Cultural heritage

Cultural heritage values appreciate that the environment is a significant contributor to various and diverse cultures and a way for people to feel connected to their ancestry (Brown & Reed 2000; Gee & Burkhard 2010). The environment is important to people for its historical significance and myth or traditions associated with that area (Brown, Hausner, & Laegreid 2015; Plieninger et al. 2013).
2.2.2.9 Social Relations

The outdoors is a social space that promotes inter-personal activities such as picnics, surfing, walking along the beach etc. (Brown, Hausner, & Laegreid 2015; Plieninger et al. 2013). The ecosystem impacts the type of social relations developed in certain cultures, such as fishing societies differ their social relations form nomadic herding or agricultural societies (Gee & Burkhard 2010). Plieninger and colleagues (2013) identifies social relations as recreational uses of landscape such as cycling and dog walking.

2.2.2.10 Therapeutic

Themes revolving around therapeutic and health were found in the literature. Places are valued because it contributes to improved physical or mental health through activities or gives them peace and harmony (Brown, Hausner, & Laegrid 2015; Zhu et al. 2010). Personal well-being category identifies with people who identify with the coast as a place that adds to personal satisfaction or well-being, which falls under therapeutic (Chan, Satterfield, Goldstein 2012; Song, Chuenpagdee, & Jentoft 2013; Voyer et al. 2015). Jones and colleagues (2016) identified naturalistic as improvement to mental health and feelings of relaxation; however, in this in Table 1 I have included it within the theme of therapeutic.
2.2.2.11 Pristine

Pristine was added because people talk about how they enjoy nature for its ‘naturalness’ and that it is ‘untouched’. Nature is seen as peaceful and quiet due, which is why people enjoy certain areas because it is untouched or separate from development (Brown, Hausner, & Laegreid 2015).

2.2.2.12 Wilderness

Wilderness values were identified as valuing the coast for the variety of wilderness and biodiversity (Brown & Reed 2000; Zhu et al. 2010). This includes appreciation of plants and animals (Zhu et al. 2010). Wilderness was also used to describe places there were wild (Zhu et al. 2010).

2.2.2.13 Negative

Negative typology was not a standard theme identified throughout the review. Bryan and colleagues (2010), however, identify any negative emotions attached to landscape as threats to ecosystem services. Additionally, Kellert (2005) used a negativistic typology for those in fear or awe of the coast. Cultural disservices also addressed that the ocean is seen as threat to human life and people are in awe of nature (Gee & Burkard 2010). Disservices were identified as unpleasantness, scariness, and noisiness (Plieninger et al. 2013). Meanwhile Jones and colleagues (2016) discuss negative attitudes towards waterways due to overdevelopment and mis-management; however, it was not identified as a value typology in their research.

As table 1 shows there are several cross-overs on themes for values. Currently, there is no clear coding for values, nor definition of each value. For example, naturalistic and wilderness have separate definitions between literature. Naturalistic is described as satisfaction while in nature, but also as untouched land (Brown, Hausner, & Laegrid 2015; Kellert 2005). Additionally, Voyer (2015) and Song, Chuenpagdee, & Jentoft (2013) use broad categories that fit into several of the more specific typologies identified throughout the literature. Gee and Burkhard (2010) address that there need to be clear definitions of typologies and clear conceptual delineation among the typologies to avoid double counting.
2.3 Conceptual framework

The review of the literature around the Blue Economy revealed the two significant gaps in knowledge or common critiques of the way in which the Blue Economy is currently being pursued. Firstly social equity and the consideration of the human dimensions are currently lacking from many of the interpretations of the Blue Economy. Secondly, the primary tools through which the Blue Economy is being operationalized are neglecting explicit consideration of non-economic approaches to considering values. Explicit consideration of social values in Blue Economy planning is therefore inhibited by both the absence of a detailed understanding of the types of values that might influence the ways in which a community will respond to Blue Economy activities, and the lack of mechanisms through which these values can be represented spatially (in order to inform MSP exercises). Figure 2.1 represents a conceptual framework through which these two factors might be considered and addressed.
While values mapping is currently not practiced in Blue Economy research, precedence for mapping can be found in allied research areas. For example, mapping emerged as a common methodological component in many landscape and cultural ecosystem service values studies (Blake, Auge, & Sherren 2017; Brown, Hausner, & Laegreid 2015; Klain & Chan 2012; Zhu et al. 2010). In these studies, cartographic display and thematic coding was used to reveal the spatial spread of values across a study area as well as any zones where particular values were most prominent. In other words, values mapping demonstrates spatially what is important to individuals and why (Blake, Auge, & Sherren 2017).

Mapping methodologies within the values literature included a range of participatory approaches, ranging from closed response through to more open-ended data gathering. One study required participants to drop pins on map locations and assign a specific value category to the location (Brown, Hausner, & Laegreid 2015). Zhu and colleagues (2010) used coded sticker dot points on maps to assign value and had participants rank the values in order of importance to them. Bryan et al. (2010) required participants to allocate positive value and negative value to locations through colored stickers on laminated maps. Examples of interviews being deployed alongside the mapping permitted understanding of why and what was valued in certain locations (Blake, Auge, & Sherren 2017; Bryan et al. 2010; McIntyre, Moore & Yuan 2008; Plieninger et al. 2013). Additionally, researchers allowed participants to place more than one value on a location as some site are highly valued for a variety of reasons (Blake, Auge, & Sherren 2017). Often paper maps were used with different colored pens to illustrate values and levels of attachment to specific locations (Blake, Auge, & Sherren 2017; Zhu et al. 2010). The methodology, along with mapping included socio-demographic surveys including questions on age, gender, education, income, and family structure (Blake, Auge, & Sherren 2017; Brown, Hausner, & Laegreid 2015; Plieninger et al. 2013).
2.3.1 Qualitative GIS

A Geographic information system (GIS) is defined as a combination of hardware, software, and programming that aid in operating, storing, analysing and displaying georeferenced information (Coftas & Diosteanu 2010). Since its inception in the 1960s, GIS has progressed due to its capability to handle large quantities of geographical data (Coftas & Diosteanu 2010). GIS is regularly deployed in government planning, resource management, military applications, disaster relief, environment conservation, and business intelligence (Coftas & Diosteanu 2010; Goodchild 2007). GIS are regularly used in a variety of academic disciplines, primarily for quantitative research.

During the 1990s, GIS was typified by critical researchers as a quantitative, objective and controlling technology unfit for qualitative research that foregrounds subjective, situated and diverse knowledges (Pickles 1995). However, Critical GIS scholars – many of whom were also GIS users – contributed nuanced critiques of GIS as a technology embedded in wider power structures, while also seeking commonalities to bridge the gulf between GIS practitioners and their critics (Schurrman 2000). Participatory uses began materialising in the early 2000s as GIS became enrolled as a tool for community participation and activism (Elwood and Leitner 1998; Harris and Weiner 1998), followed closely by an emergent Feminist GIS that focussed on female experiences of space and place (Kwan 2002). These alternative readings and deployments of spatial technology set the stage for qualitative GIS to emerge in the late 2000s.

Qualitative GIS can be thought of as a mixed method approach that incorporates mapping alongside interviews and transcripts to gain detailed descriptions and feelings about specific locations and encourage narrative (Jung & Elwood 2010; Preston & Wilson 2014). Contextual data can be incorporated directly into qualitative GIS due to its inherent flexibility – a spatial database can incorporate interviews, transcripts, sketch mapping, photographs, field notes and observations (Jung & Elwood 2010). Overall, Qualitative GIS allows researchers to incorporate quantitative and
qualitative data sources together, leading to more nuanced and explanatory understandings of spatial patterns and correlations (Preston & Wilson 2014).

2.4 Conclusion

The aim of this chapter was to understand what existing research has been done on the Blue Economy and values. Examination of these two topics revealed an over emphasis on economic valuation in both the conceptual and practical manifestations of the Blue Economy. This therefore supports the idea that social values are currently poorly understood, and that governance approaches to the Blue Economy are failing to adequately take social values into account. A qualitative mapping approach was identified as an ideal tool through which to explore the interaction between social values and the Blue Economy, for two main reasons. Firstly Marine Spatial Planning is a key governance tool currently being employed in Blue Economy planning – therefore spatially explicit representations of social values would be of benefit to these processes. Secondly, qualitative GIS provides an ideal platform through which to explore where values are located through a sociological perspective.

At present, there has been no research taking a pro-active approach to defining the Blue Economy by assessing local stakeholders’ values. Additionally, the Blue Economy and qualitative GIS have yet to be incorporated together in research. Although, there is existing research on mapping values; there is nothing currently existing combining the two concepts. The next chapter delves into the methodology of this research and how a mixed method qualitative GIS approach was used to evaluate what community members would accept in regard to the Blue Economy.
Chapter 3. Methodology

Image 3. Bombo beach
This chapter outlines how rigour was accomplished in the collection and triangulation of data to address the research questions. This chapter is divided into six sections. Firstly, the research context elaborates on the study area and rationale for selecting this area. The following section explores the mixed method approach of the project overall. Sections three and four provided more detailed examination of the two research phases: phase one, crowdsourcing, and phase two, mapping interviews. These two methodologies are broken into subsections discussing recruitment and sampling strategies and as well as analysis. The fifth section explains how confidentiality and the positionality of the research were established. The final section discusses the triangulation process used to bring the two phases of the research together.

3.1 Research context

The study area for this research is located in the Illawarra, a coastal region directly south of Sydney. The study area ranges from Wollongong in the north to Kiama in the south (see figure 2). It encompasses a range of built forms including urban (Wollongong), industrial (Port Kembla), new-build suburban (Shellharbour) and coastal village (Kiama).

The Blue Economy is a potentially significant component of the Illawarra economy. The broader South Coast region of NSW (from the Illawarra to the Victorian border) supports a population of approximately half a million people, with ocean and maritime industries estimated to provide more than 2,000 full time jobs and at least $356M AUD GVA (Herath, forthcoming). Wollongong the largest city in the region, and major maritime industries relevant to this area include shipping, ports, fishing and tourism. In particular, Port Kembla is a major Australian port which provides significant employment and revenue for the region. The region also faces challenges associated with the loss or decline of major industries in the region, creating a social and economic imperative to consider transformative new economies.

In 2018 the NSW State Government released its Marine Estate Management Strategy (MEMS). It serves as a state wide management strategy for all marine and coastal zones within NSW waters, which extends from the territorial sea baseline to a three nautical mile limit (waters beyond that are
Commonwealth waters). The strategy includes an action item to ‘Explore opportunities for innovative ecologically sustainable activities in the marine estate...by developing a blue growth strategy’ (NSW Marine Estate Management Authority 2018, p. 69). Whilst not providing a definition for Blue Growth or a Blue Economy, the strategy makes reference to the European Union’s Blue Growth Strategy (2012) as the model for a Blue Economy. As such it focuses on economic development and growth of sustainable maritime sectors, whilst also highlighting that this development should also support wider community wellbeing objectives (NSW Marine Estate Management Authority 2018).

Figure 2. details the study extent. The sketch map matched the study area of Wollongong Harbour to Kiama. The scale of the printed map permitted coastal landforms, such as beaches and headlands to be seen and responded to with discussion and drawings. In contrast, the crowdsourced web-map allowed participants to place pins beyond the study extent. Pins were placed as far north as the Royal National Park and as far south as Batemans Bay. Data for the mapping analysis in chapters 4 and 5 uses only on those pins that fall within the study extent of Wollongong to Kiama.
Figure 1. Study area for sketch maps (crowdsourced map was unrestricted)
3.2 Methodological framework

The project methodology was designed around a Qualitative GIS framework. This mixed method approach calls for a combination of geospatial techniques and qualitative methods. No one technique takes analytical precedence. Rather, elements of spatial and geovisual analysis take place alongside and in concert with qualitative thematic analysis. Data gathering is laid out in a sequential exploratory fashion (see figure 3).

![Sequential Exploratory Methods Design](image)

The research incorporated two distinct phases of research, crowdsourcing and sketch map interviews. The following sections provide details on each phase, including recruitment, data collection and analysis.
3.3 Phase 1: Crowdsourcing

Crowdsourcing relies on a large group of users to create, collect, and share information that are not organized centrally (Coftas & Diosteanu 2010; Papadopoulou & Giaoutzi 2014). Crowdsourcing has become an increasing option to gain geographic information from the masses due to technological advances and increased accessibility to geo-visualization platforms (Elwood 2008). For example, websites such as OpenStreetMap, Google Maps, and Google Earth have created user friendly and easily accessible platforms for everyday people to create and contribute to geo-visual data (Blake, Auge, & Sherren 2017; Elwood 2008; Goodchild 2007).

Crowdsourcing is variously referred to in geographic literatures as Volunteered Geographic Information (VGI), public participation GIS (PPGIS), participatory GIS (PGIS), and collaborative GIS (Coftas & Diosteanu 2010; Elwood 2008; Goodchild 2007; Heipke 2010). VGI is defined as gathering geographic data from voluntary individuals, while PPGIS differs in that it tends not to be citizen initiated and instead established by agencies (Brown 2015; Goodchild 2007). PGIS utilizes community participation to collect spatial data (Fagerholm & Kayhko 2009). Both PPGIS and PGIS encourage inclusion of marginalised groups; however PGIS focuses more on community empowerment, while PPGIS focuses on community involvement for planning and management (Brown & Kytta 2014). Collaborative GIS complies knowledge and spatial data from multiple stakeholders to manage, manipulate, and analyse spatial data (Coftas & Diosteanu 2010).

Despite competing definitions, spatial crowdsourcing is low cost and can permit a high volume of participants to contribute spatial data for planning and decision making (Boschmann & Cubbon 2014; Coftas & Diosteanu 2010). For example, the Victorian National Park Management Agency used crowdsourcing for local stakeholders to create points on a map and discuss their opinions about certain locations for input into later redesigns and upgrades (Papadopoulou & Giaoutzi 2014).
Crowdsourced mapping allows researchers to gather large quantities of data; however, there are obstacles to this methodology. The most obvious hurdle is the requirement for internet connectivity, which is not accessible to all either geographically or technically (Goodchild 2007; Heipke 2010). Despite technological advances and the immediacy of the internet, some participants prefer to participate on paper maps than virtual maps (Blake, Auge, & Sherren 2017). As the practice itself relies on public participation and is exploratory, the methodology can easily unravel (Preston & Wilson 2014). Additionally, crowdsourcing platforms are normally in English and use the Roman alphabet, which creates a language barrier (Goodchild 20007). Together, these barriers can disempower minority groups and promote inequalities (Elwood 2008).

Crowdsourcing can sometimes promote spatially inaccurate data with the likelihood that results can be very repetitive (Coftas & Diosteanu 2010; Heipke 2010). Additionally, participants adding to these maps are not spatial data experts and may lack extensive knowledge of cartography and web maps (Heipke 2010). Regardless, crowdsourcing can still encourage some participants to share their situated expertise on a local area (Flanagin and Metzger 2008).

A successful crowdsourcing platform also requires constant attention and reflection on engagement and participation (Preston & Wilson 2014). Brown (2015) argues that despite technological advances and the increase in this methodology, participation GIS has yet to make a significant impact on environmental planning processes.

**3.3.1 Recruitment: Crowdsource sampling strategies**

Recruitment began June 8th, on World Ocean Day, and finished on the 12th of August 2019. The requirement for participants was to be a local stakeholder of the Illawarra Region and be of 18 years or older. The recruitment process for the crowdsourcing phase was convenience sampling as anyone who had access to the link could participate (Hay 2016). Recruitment for the crowdsource phase heavily relied on social media platforms including an array of various Facebook groups (see appendix
A). The crowdsourcing web-map was posted to several Facebook groups multiple times and shared among colleagues; however, people were hesitant to contribute (see appendix B). The posts were re-worded each time to encourage participation and address possible issues with contribution. Additionally, contentious topics were included in the posts or comments to encourage participation.

![Gender representation among crowdsourcing participants](image3.png)

**Figure 3. Gender representation among crowdsourcing participants**

![Age group bands of crowdsourcing participants](image4.png)

**Figure 4. Age group bands of crowdsourcing participants**
3.3.2 Data collection

The crowdsourcing data collection phase was completed first as interviewees were targeted through the web map responses. The crowdsourcing component of the study encouraged local stakeholders to plot upon the map where they value and where they would like Blue Economy activities. Through this, the research gained a high volume of responses (n=75). Crowdsourcing is a viable methodology as it is easily accessible, low cost, and is not extraneous or time consuming (Heipke 2010).

The crowdsourcing was gathered through socialpinpoint.com, an online and user-friendly platform for community participation (see figure 5 and 6). Users can drag and drop icons upon a web map, provide short form comments and rate other user’s contributions. The web map, labelled Illawarra values, asked participants for two main sources of information:

1. valued places (or places of significance to them), and
2. where they would like certain industries placed in the Illawarra. Suggested industries displayed on the web map through icons were aquaculture and commercial fisheries, shipping and ports, renewable energy, tourism and recreation, and other.

The web map initially showed a welcome screen with an instructional video of how to use the map and the participation information sheet information (see Appendix C.). Despite the instructional video and further instructional texts participants were still confused on how to use the map and what to place on the map.
Figure 5. Crowdsourcing web-map from socialpoint.com

Figure 6. Comment from crowdsource web-map
For the ‘Value’ pins, participants were required to enter a comment, their email, home suburb, and accept the terms and conditions to submit the pin. Participants then had the option to fill out a demographics survey and comment if they would like to participate in a short interview. The survey consisted of age, gender, and occupation. Throughout the web map, it explicitly stated that the users’ emails are confidential and would not be contacted without permission; however when talking face-to-face with potential crowdsourcing participants many had to be reassured their emails would remain confidential.

3.3.3 Data analysis

From the cartographic responses gathered, the data was exported into QGIS for spatial analysis and subsequent geovisualisation. The crowdsourcing responses were first exported from socialpinpoint.com as an excel spreadsheet with coordinates and comments attached to the file. The valued pins were separated from the industry pins and coded separately. The valued pins were coded by the values chart into maximum 3 codes (table 2.1). The coding framework was created through an accumulation of other literatures’ coding framework on social values (see table 2.1). The industry pins were also coded by attitudes (positive, neutral, negative) and reasoning.

Additionally, participant suburbs were grouped by zone, either northern, central, or southern suburbs. The north suburbs were from Wollongong north, as there were several participants from Wollongong up to Sydney. The central region encompassed from Port Kembla to Barrack Point. The southern region encompassed the cities south of Barrack point to Kiama.

3.4 Phase 2: Sketch Mapping

Sketch mapping is a low-tech form of generating spatial data that requires only pen and paper. Sketch mapping, cognitive mapping, and mental mapping are sometimes used interchangeably in the literature; however mental mapping is completely based of the participant’s memory when drawing upon a blank page, while sketch mapping often provides a base map for the participant to draw on (Boschmann & Cubbon 2014; Curtis 2016). Often with sketch mapping, participants use
different colours to signify different themes or codes (Boschmann & Cubbon 2014; Brennan-Horley & Gibson 2009; Gieseking 2013). Any markings made upon a sketch map can be easily transferred to a spatial format by georeferencing and digitisation.

Sketch mapping utilizes hand drawn maps from interviewees that create a place-based conversation within the interview format (Boschmann & Cubbon 2014; Brennan-Horley and Gibson 2009; Gieseking 2013). Sketch mapping has grown in popularity in qualitative GIS research because it forces the participant to respond in relation to the place in question, thereby increasing engagement (Boschmann & Cubbon 2014; Brennan-Horley & Gibson 2009).

This form of qualitative mapping, despite being low cost and easily accessible, is not without challenges. Despite giving more in-depth detail on the participant’s values and perception, sketch maps can lack spatial precision due to human error (Brennan-Horley and Gibson 2009; Gieseking 2013). Curtis (2016) highlights many unanswered methodological questions including how to best prepare participants, ideal map size, if landmarks should be used and where to place boundaries. Furthermore, certain outliers may skew sketch maps results. For example, personal characteristics of the participants, instructions and materials, and how the maps should be analysed (Curtis 2016). Despite these limitations sketch mapping remain a tactile and common methodology for understand a participant’s perception of the study area (Curtis 2012).

3.4.1 Recruitment: Interview sampling strategies

Interview participants were targeted through snowball and convenience sampling. Convenience sampling was utilized as the study accepted anyone who was a stakeholder of the Illawarra Region. Additionally, snowball sampling was as participants through established contact with members of the public with interest in Blue Economy activities. Recruitment techniques were not limited to social media and included face-to-face techniques such as public presentations at a Wollongong art gallery (potential participants were presented with an iPad to contribute to the crowdsourced map) or by leaving pamphlets at cafes. The web-map also had an option for participants to
volunteer to contribute to the interviews however this was unsuccessful. The few participants who agreed to participate in an interview via the crowdsourcing were unresponsive or withdrew when emailed asking if they would still like to contribute. Those who were willing to participate were sent a participation information sheet and consent form, which was also brought to the interview.

Table 2. Participant attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Gender</th>
<th>Occupation</th>
<th>How long they have lived in the Illawarra for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthur</td>
<td>23</td>
<td>M</td>
<td>Student</td>
<td>3.5 years</td>
</tr>
<tr>
<td>Jason</td>
<td>22</td>
<td>M</td>
<td>Student</td>
<td>4 years</td>
</tr>
<tr>
<td>Daniel</td>
<td>58</td>
<td>M</td>
<td>Academic</td>
<td>Frequent visitor</td>
</tr>
<tr>
<td>Bart</td>
<td>81</td>
<td>M</td>
<td>Retired</td>
<td>81 years</td>
</tr>
<tr>
<td>Patrick</td>
<td>24</td>
<td>M</td>
<td>Bartender</td>
<td>15 years</td>
</tr>
<tr>
<td>Kristin</td>
<td>56</td>
<td>F</td>
<td>Ocean conservation advocate</td>
<td>2.5 years</td>
</tr>
<tr>
<td>Hamish</td>
<td>39</td>
<td>M</td>
<td>Academic/Marketing</td>
<td>32 years</td>
</tr>
<tr>
<td>Joe</td>
<td>48</td>
<td>M</td>
<td>Retired</td>
<td>48 years</td>
</tr>
<tr>
<td>Will</td>
<td>44</td>
<td>M</td>
<td>Cleaning services</td>
<td>40 years</td>
</tr>
<tr>
<td>Trent</td>
<td>23</td>
<td>M</td>
<td>Student</td>
<td>Frequent visitor</td>
</tr>
</tbody>
</table>
All participants for the interviews identified as Caucasian and male, except for one female interviewee. The participants’ age varied, with the median age being 42 years old. There was a variety of time spent living in the Illawarra and two participants who worked in the Illawarra. Those who agreed to participate in the interview were targeted through mutual friends and colleagues. Each had various levels of interest or passion for the subject of ocean industries and a mixed level of understanding of the term ‘Blue Economy’.

3.4.2 Data collection

The semi-structured interview followed the crowdsourcing phase of data collection. The semi-structured interview allowed the researcher to gain further in-depth understanding about participants’ values and acceptance of different Blue Economy activities. The interview design was semi-structured; thus allowing the interview to flow naturally, ensuring rapport between the researcher and participant (Hay 2016). The interviews utilised paper sketch maps of the study region for the participant to draw upon, therefore grounding responses and permitting place-based conversations to flow (Brennan-Horley and Gibson 2009; Boschmann & Cubbon 2014). Participants illustrated their feelings and attachments to specific places upon the map, thus providing the researcher with further insight into their perceptions and any values they may assign to particular places (Curtis 2016). The interviews consisted of open-ended questions on values and places of significance in the Illawarra Region. The interview also asked questions about where the participant would like different Blue Economy activities to be placed. Figure 7. shows an example of a sketch map from a participant. All interviews were audio recorded and transcribed following the interview to provide credibility.

The semi-structured interview was based on an outline or broad questions. If participants were unable to think of industries then industries were suggested to them. This allowed the interview to be flexible and prompt participants if necessary. The interview was designed around these five questions:

1. What do you know about the Blue Economy?
2. How can the ocean be used for economic growth?

3. How can the ocean be used for environmental sustainability?

4. How can the ocean be used for social equity?

5. What do you think of these emerging ocean industries (offshore windfarms, seaweed farms, etc)?
3.4.3 Data analysis

The interview responses were transcribed and coded through NVivo. The coding process was thematic and focused on keywords and values. A similar values framework was employed, as in Phase 1 using the valued identified in table 1. (in chapter 2). Additionally, other themes that were not identified in the literature review were found and used in this coding framework. The sketch maps were paper maps that were scanned into Google Earth and exported as polygons from Google Earth into QGIS.

3.5 Ethics and Positionality

3.5.1 Formal Ethics Application

Ethical procedure and guidelines were followed and were approved by the University of Wollongong Human Ethics Research Committee (HREC). Researchers must complete a formal ethics application to HREC. The ethics application required a submission of the interview outline, consent form, participation information sheet, and a brief overview of how consent was gathered from the crowdsourcing phase. Additionally, the application required the researcher to identify any possible harms, address ethical problems such as confidentiality, privacy, and informed consent. The application was approved from the University of Wollongong on the 12th of April 2019. Ethics number: 2019/125

3.5.2 Researcher Positionality

To evaluate the researcher’s position in the study critical reflexivity was employed. Reflexivity forces the researcher to understand how their influence or bias may affect the study (England 1994). The researcher must reflect on the social power and relationships between researcher and participant and how their bias may influence the research.

3.5.3 Positionality statement

In order to address potential bias my positionality statement looks at how my beliefs and values may influence the research. I am a young Latina who has always been passionate about the ocean and
the environment. I acknowledge the fact that due to my upbringing I identify as politically left wing and informed by green/environmental ideologies.

I have always lived in a coastal state, in the USA and Australia, where the ocean was accessible to me. However, within the past 3 years I have lived walking distance from the coast and that has strengthened my appreciation for the ocean. I see the ocean as something magnificent that should remain pristine. I acknowledge; however, that due to our capitalistic economic system the ocean will be used for economic growth. I oppose extraction industries such as fossil fuels in the ocean and am hesitant about the growth of industry around the ocean and the potentially harmful impacts they may bring.

3.6 Triangulation

Phase 1 and 2 were brought together first by looking for any spatial patterns in responses across the interview sketch maps and the crowdsourcing responses. Similarly, themes derived from interviews were used to code any textual responses found in the web maps, with similarities or differences noted. Finally, themes from qualitative responses were used to create maps with spatial clusters interrogated to reveal any dominant themes.

3.7 Conclusion

Rigour was achieved in this research through credibility, transferability, dependability, and confirmability (Hay 2016). Rigour is identified as how reliable and trustworthy the research is. The various methodological approaches allowed a variety of data to be gathered and triangulated to ensure rigour.
Chapter 4. Values

Image 4. Bass point shared by crowdsourcing participant Marker 101
This chapter seeks to understand the range of ways in which people in the Illawarra region value the local coasts and oceans. It looks at the geographical location of places of importance to participants, and through analysis of both crowdsourced data and transcripts, highlights the reasoning placed on these sites of value. Section 4.1 focuses on the crowdsource phase and is divided into two subsections. Section 4.1.1 looks at how values are linked and intersect. Section 4.1.2 analyzed tension between values along the coast. The sketch mapping interviews was the focus of Section 4.2, which was divided into two subsections. Section 4.2.1 looked how uses and activities influenced values. Section 4.2.2 addressed issues around overdevelopment and growth.

### 4.1 Crowdsourced data

There was a total of 193 pins placed in the crowdsource phase and 101 pins (52%) were ‘a valued place’ (Fig. 8). Of the participants who placed pins under ‘a valued place’, 18% were multiple pins placed by singular respondents. This indicates that some felt comfortable in emphasizing multiple and spatially-varying connections to the coast.

![Figure 8. Percentage of pins in crowdsourcing](image-url)
Figure 9. Heat map of all valued places
Figure 9 demonstrates a heat map of all valued pins. The highest concentration of valued areas were Wollongong Harbour, Windang, Shellharbour, and Minamurra River.

![Heat map of valued pins]

**Figure 10 Percentage of thematic identified in crowdsourcing**

Thematic analysis was conducted of the text provided by participants to explain their reasons for picking a particular location as a valued place, using a coding framework based on the literature (see Table 1 Chapter 2). It indicated that aesthetic and recreational purposes were the most commonly identified reasons for allocating places of value (Figure 10). 51% of participants demonstrated they valued a place for either aesthetic or recreational purposes. Participants engaged more frequently with these two themes, as opposed to the remaining 10 themes that emerged through the data. In many cases aesthetic and recreational themes overlapped, both spatially and thematically. Some of these interactions are discussed in further detail in the following sections.

### 4.1.1 Values are linked and intersect

Aesthetic features of the coast were commonly identified as a top value for participants during the crowdsourcing phase. Aesthetic themes were identified through comments about visual appeal,
beauty of coastal landscape, and beauty of environment and wildlife. Quotes used from the crowdsourcing data were identified through their maker number (Mx). Aesthetic codes were approximately a quarter (27%) of the initial codes found under a valued place. This data is broken up spatially.

As seen in figure 9 Wollongong has the highest concentration of aesthetic values, followed by Windang, and Shellharbour. Many of the contributors lived in the northern suburbs (Wollongong and north) which most likely influenced the concentration of value pins.
Figure 11. Heat map of aesthetics
Many participants talked about how beautiful they thought their valued place is.

“Best spot to see the sunrise of a morning! So lucky to live in a place with such natural beauty” (M11, one upvote).

Another participant said “It’s beautiful here.” (M83) and “...its beautiful and I enjoy it (M50). The comments made about why these places were valued were brief, perhaps demonstrating that respondents felt visual appeal was enough justification for valuing a location.

Recreational values were also highly significant in this study, this often involved more passive uses such as walking or running, as well as surfing or snorkeling. For example, in Wollongong a number of participants commented on the pedestrian friendly infrastructure that allows them to walk/run:

“Puckies Beach walk- a great place to relax and enjoy the beautiful place we live.” M16

“Great track looking out at City Beach to go for a run!” M53

Many of the places valued for recreation were also highly valued for aesthetic reasons. As seen in Figure 12 recreational values were identified in areas such as Wollongong, Windang, Shellharbour, Minnamurra River, and Bombo beach. The highest density of recreational values was found in Wollongong.
Figure 12. Heat map of recreation
This interaction between values was also clear in the reasons provided by the participants for why they valued that location. For example Bushrangers Bay in Shellharbour was a popular destination for aesthetic values, but also because it is an excellent location for diving and snorkeling. Multiple participants highlighted this area as a place of significance that they would like to remain pristine and untouched. One participant said: “Gorgeous marine reserve that needs to be maintained,” (M84, one upvote).

The ‘Farm’, a popular surfing beach in Killalea State Park in Shellharbour, also revealed similar themes throughout the comments. Again, respondents enjoyed the beach for its beauty, but also enjoyed the beach for its lack of development and recreational uses.

“The Farm, national reserve, great waves + one of the only beaches left untouched by surrounding infrastructure and development” (M68).

“Gorgeous, untouched beach that I grew up with!” (M88)

“The Farm! So beautiful here. Great surf spot but also great for a day of chill.” (M31)

Therapeutic values were the third most common theme identified in the research. The environment and the ocean are often seen as a place to improve mental health (Jones et al 2016; Voyer et al. 2015), and this was consistent with the findings of this research. For example, many participants indicated that they enjoyed the beaches for quiet and relaxation:

“I like to go to the quieter beaches to swim and go for a walk” (M18)

“Quiet beach and nice to take the dog for a walk. really peaceful.” (M21)

“Best spot to sit alone and gather thoughts or focus on study. Relaxed environment regardless of how many people are around.” (M12)

Many values identified in the participant comments intersected with each other. In particular connections with nature and wildlife (coded as wilderness) and relationships with other people, such as friends and family (coded as social relations) were commonly found in association with aesthetic
values. For example, in the central region, wildlife was a dominant theme, with respondents talking about the bird nesting area:

“Windang Island (Gunmangang) is a special place. It is a beautiful place to walk, watch the bird life and sit peacefully.” (M45)

“One of my favourite places to walk, swim (when safe), sit, think and watch birds. The dunes are beautiful, I spend some time doing bush care there.” (M 46, one upvote)

Another participant talked in nostalgic terms about their valued place, Mystics Beach, drawing on values coded as social relations, sense of identity, recreation and aesthetics:

“I grew up surfing at this beach with my dad. It was always a big deal driving down from Sydney when I was younger, especially because the waves are ever so lovely” (M17).

Therapeutic values were often associated with silence and quietness and lack of development and could also be aligned with recreational activities. Participants most often mention walking when discussing how relaxing the beaches were, again indicating often complex interactions between values.

4.1.2 Vulnerable coast, vulnerable values

The quotes from the crowdsourced data reveal a vulnerability in the relationship between values. A number of locations in the study region, such as Mystics beach and Minnamurra River, were enjoyed for their beauty and seclusion but were also popular recreation areas, creating a tension between these two values.

This same tension was also observed even in more built up areas, such as Wollongong. For example, participants, when referring to Wollongong, mentioned the Blue Mile pathway (a pedestrian friendly pathway along Cliff road) or placed their pins on the pathway. Participants enjoy the pathway
because it promotes recreational activities, but a number also expressed concerns about the over use of these locations.

“North Wollongong beach and the Blue Mile walk are literally one of the best features of Wollongong. Development should be carefully monitored to protect the area at all costs” (M14).

“Wonderful swimming places: the Continental Pool and the old rock pool. The Blue Mile path has been a bit overdone, which has spoilt some of the seclusion of the place. I hope future development can be more subtle.” (M74).

Similarly, therapeutic values were not always expressed in positive terms. In some instances participants related negative emotional responses to activities, developments or uses which they felt impacted on the way in which they valued a place. For example, some participants indicated that they felt a valued place had been spoiled due to misuse of the area, or by the existence of infrastructure or types of uses which were inconsistent with the values they held for that site.

“City beach is great for surfing, however as such a tourist hot-spot the rubbish here is awful. There should be more beach clean initiatives & education/signage for tourists” (M69)

“peaceful and mostly uninterrupted sand dunes make the beach feel more natural and undisturbed than North Beach, pity the view is of the steelworks though” (M55).

“...this is documented as one of the state’s worst locations for illegal fishing offences, no recycling options for people to responsibly dispose of rubbish and poor ‘management’ of dune and sand movement” (M67)

For many the personal connection to particular location translated into a desire to see that site ‘protected’ from these incompatible uses or activities.

“Beautiful quiet beach, protected by Puckies from the noisy development of other parts of Wollongong. This needs to be protected.” (M75)
“Warilla Beach and the surrounding area is a beautiful, tranquil place. It’s very valuable for the health and fitness including mental health of the local community and visitors alike. I believe the area should be preserved for future generations. It is also an important area for marine life including migrating whales.” (M 89)

4.2 Sketch mapping interviews

The sketch mapping interviews largely supported, and provided greater insights into the trends observed in the crowdsourced data. For example, the importance of aesthetic values as a fundamental value aligned with the coast was a feature of many of the interviews.

“All along here is North Wollongong, beautiful beach there. Then we have the harbour here with the lighthouse and this beach here is also beautiful.” Kristin

“The Minnamurra river area is just gorgeous, and so is Kiama, it’s just beautiful scenery. I kind of just appreciate it, I guess. Like, yeah, it’s just very aesthetic.” Hamish

4.2.1 Uses influence values

The sketch mapping interviews highlighted the range of different ways that the coast is used and enjoyed by local communities, and how these uses might influence the way those locations are valued. Participants talked in depth on how they used the coast and all of the recreational activities they partake in the area. Activities identified were surfing, walking/running, diving, and many more. In some instances, different types of use appeared to align with different ways of valuing the coast. For example, Arthur explains how he uses Wollongong Harbour for active purposes:

“I dotted the lighthouse in Wollongong Harbour, because I used to go play Pokémon Go there and it’s a very nice little spot there. There’s a lot of people that go there”
For Arthur the popularity of the site was part of the appeal of that particular location, and encouraged his use of the area for social interaction. Other participants, such as Trent, valued his favourite location’s seclusion:

“it’s a really nice diving spot and the reason it’s a really nice diving spot, is not that many people go there. You still have a decent amount of people, but it’s not like going to the Great Barrier Reef where everyone’s going to that ONE spot…”

In this way we see that different types of recreational use appear to influence the ways in which participants valued a site. For example, those involved in snorkeling, diving and surfing often appeared to value wilderness experiences involving fewer people and opportunities to connect with nature. For example, Jason mentioned Bass Point as an important place to him because of wildlife and diving:

“Bushranger’s Bay and this whole point is really good for diving. A lot of sharks and some things around there. So it’s pretty important for sea life.”

Yet these users were also influenced by more practical physical considerations, such as accessibility and available facilities. For example, Daniel explains that there is a dive spot called “the gutter” at Bass Point (in the central section of the study area) which is a valued location because of the accessibility.

“I do come down here for scuba diving a bit because that’s one of the best shore dives on the coast”.

These practical considerations, especially accessibility, were relevant to a range of identified values. For example, the availability of dog accessible beaches was mentioned by several participants:
“when we had a dog we’d take him to the beach and I’d just let him run for his life along the beach so we’re talking about that social enjoyment. Going to the beach with your dog, pretty much that’s peaking.” Joe

Finally, different types of uses were also linked strongly with values relating to sense of identity and feelings of nostalgia or connections to important people of life events. For example, Joe talks about how he has memories attached to surfing which have influenced the way he feels about his local beaches.

“I have an emotional attachment to the beaches, where I learned to surf and spent my wayward years at these beaches with friends and Australian lifestyle of going into the surf and spending your school holiday there’s and appreciating these beautiful beaches”

4.2.2 Concerns with growth

The way in which places were valued by the sketch mapping participants also framed the way they felt about future prospects of these locations, and in particular about how they responded to ideas of ‘overcrowding’ or ‘overuse’. Similar concerns to those raised in the crowdsourced data were also encountered in the sketch mapping. In particular some sections of the coast and oceans of the Illawarra were considered at risk of overdevelopment.

“I think that that’s (Shellharbour) already getting to the stage where you’d want to call it (development)” Daniel

“the risk is over tourism and we will see that in the marina. We will see it’s very crowded with its narrow streets. So we’ll see congestion down there because it’s so beautiful but now I can’t park my car or move anywhere” Joe

These quotes illustrate concerns over future growth that relate to practical questions of accessibility as well as a more generalized feelings of concern about growth trajectories. These concerns exist
within the context of rapid urban development occurring in the region, particularly in the central region around Shellharbour, where a new marina will open in 2020.

This sense of unease led some participants to call for increased protection or constraints on growth. For example, Kristin mentioned that she would like more areas to be protected within the Shellharbour area:

“We actually think that the whole lot should be a marine park.”

Similarly, Jason talks about what he considers the mismanagement of the whole Illawarra coastline:

“I have seen it degrade over the years because of mismanagement and I think that we should put a lot more focus on correct management and sustainable management and practices.”

These quotes indicate negative emotions around valued places, not because of the environment or landscape, but because of the consequences of human interaction. While some participants saw the removal of human influence as an antidote to these concerns, others felt increased human intervention was required in order to fix past mistakes. For example, Trent talked about how he values Lake Illawarra but is disappointed with the management of the Lake.

“The lake, which has always got dredging problems... The Lake could actually benefit from an influx of money because the way Wollongong government handled its side of the dredging of the mouth when it became a salt water lake was pretty poor”

4.3 Conclusion

Aesthetic, recreation, and therapeutic were the most common themes identified in this study. Often these themes interlinked and overlapped spatially. Themes often reoccurred in key areas along the coast, especially Wollongong and the central region (e.g. Shellharbour and Windang). Participants found these areas visually pleasing, but were also often actively engaged with these sites through
recreational activities (Jones et al. 2016). Additionally, participants often associated recreational activities and visually appealing locations with improved mental health and ‘peacefulness’. This is consistent with academic literature, and the finding that people often value the coast for its beautiful, tranquil presence, leading to individuals wanting to spend leisure time engaging in water activities, such as surfing or swimming (Jones et al. 2016; Kellert 2005; Zhu et al. 2010; Gee & Burkhard 2010).

Within the literature aesthetic and recreational values were the most common and often interlinked (Fagerholm & Kayhko 2009; Klain & Chan 2012). Therapeutic themes were also common, particular in the crowdsourced data. The predominance of these values may be influenced by a range of factors including types of use, and gender. For example, Brown and Reed (2000) found that women were more likely to value aesthetic and therapeutic values over economic and recreation. Respondents to the crowdsourced data were predominately female (68%). Additionally, recreational values were a dominant theme in the interviews, which were mostly male participants.

Through the comments it can be seen that aesthetic values overlap with other values such as wilderness, naturalistic, and recreational values. Other studies found that aesthetic overlapped with recreation, social relations, and cultural heritage (Gee & Burkhard 2010). In this study cultural heritage was not a common theme identified, but recreation and social relation were found to be linked with aesthetic values. People value areas for their beauty, but the aesthetic value also feeds into uses such as recreation or admiring wildlife (Jones et al. 2016). Additionally, landscapes with aesthetic qualities often results in further appreciation of nature (Jones et al. 2016).

Plieninger and colleagues (2013) found that social relations and recreation were intertwined so often they combined the two into one typology, under social relations. This theme was identified as the second most common theme in their research as well (Plieninger et al. 2013). The coast is often
used for activities that improve individual’s well-being which often included social activities and recreation (Plieninger et al. 2013).

The research findings suggest that types of use may have an influence on the ways in which a location is valued. Gee and Burkhard (2010) found that people enjoy the coastline for its pristine and undamaged landscape, which is why they found it aesthetically pleasing. This demonstrates that low impact activities such as swimming and snorkeling are accepted in areas that are seen as beautiful, clean, and untouched. Plieninger et al (2013) found that recreational activities, specifically walking, were very important for participants. Often mental well-being and physical well-being were correlated as fitness activities are identified as restorative and mood enhancing (Voyer et al. 2015).

The most striking theme, common to both sources of data, was a sense of vulnerability and concern over the impacts of continued growth and development on social values. Themes of ‘unpleasantness’ arise in the literature because of neglected, overdeveloped, or mismanaged areas (Jones et al. 2016; Plieninger et al. 2013). Negative emotions towards places were due to litter, mismanagement, and overcrowding. Plieninger et al (2013) found waste and littering to be the most common disservice identified among one third of participants. Incidences of concern are important as they demonstrate where community members may oppose further development, including opportunities for Blue Economy growth.

This chapter detailed multiple and interrelated coastal values. Participants demonstrated how values underpinned their perceptions, uses and future hopes for their coastal area. The next chapter moves to an examination of which future Blue Economy industries these participants would encourage, accept or resist.
Chapter 5. What Blue Economy industries are acceptable?

Image 5. Windang, shared by crowdsource participant
This chapter details responses to questions about where industries should be placed, drawing on data from both the crowdsourced map and sketch mapping interviews. The section is divided into the 6 broad industries discussed in the study. There was a spectrum of support found for the industries. Firstly, tourism and recreation were analyzed as they demonstrated the most community support. Renewable energy also had a surprising amount of community acceptance. Then fishing and shipping, which were only scantily accepted. Finally, extraction which was completely rejected.

![Bar chart showing percentage of responses per industry]

**Figure 13. Percentage of responses per industry**

There was a total of 88 industry pins placed in the crowdsourcing map. On average participants placed 2 industry pins. Figure 13 illustrates the percent of industries suggested by participants. Participants, for the crowdsourcing phase, had 5 industry options: tourism and recreation, renewable energy, aquaculture, shipping and ports, and ‘other’. Figure 13 shows that tourism and recreation was the most common industry discussed among respondents. Tourism and recreation had 45% of the total industry pins and then renewable energy following with almost half the responses. Of the participants who placed an industry pin, 25% of participants placed multiple
industry pins. This demonstrates that some felt more comfortable or passionate about discussing industries than other participants.
Figure 14. Heat map of all industry pins
Figure 14 shows that the highest concentrations of industry were in Wollongong and Port Kembla. Wollongong had a significantly higher concentration of total industries placed along the coast. Other areas of concentration were Lake Illawarra, Shellharbour, and Bombo. The following sections will explore each of the main industries discussed and includes the results of both the crowdsourced and sketch mapping interviews.

5.1 Tourism and Recreation

5.1.1 Crowdsourced data

The crowdsourced mapping phase of the research identified a high level of engagement with tourism and recreation as an industry in the Illawarra region. In general, this was largely positive with tourism and recreation obtaining both the largest number of pins and the highest level of acceptance (demonstrated by positive comments), although some concerns were raised about over development. In general these pins tended to be placed in the north of the study region in Wollongong, with a slightly lower concentration in Lake Illawarra (Figure 15). A smaller collection of pins (approximately one or two pins) were also placed along the coast from Port Kembla down to Bombo.

The response to tourism and recreation amongst the crowdsource mapping participants varied in both volume and content across this geographic area. In the north of the study area participants suggested infrastructure that would promote outdoor activities. North Wollongong currently has the Blue Mile Pathway, restaurants, and park in the area; however participants suggested that they would like additional amenities added to this location. This area was a hotspot for recreation and tourism and had the greatest community acceptance with few restrictions.

“Tourism and recreation should be placed at North Wollongong beach because it has a high level of foot traffic. I regularly see people walking and exercising along the footpaths here, and I believe it would benefit from additional recreational activities, such as more outdoor
gyms or playground equipment. Further, the beach location is beautiful and could encourage people to get outside and be more active.” (M1, one upvote)

“more activities/places to eat (that wasn’t Diggies) along the beach would be cool” (M22)

Further south, in Lake Illawarra (which had the second highest concentration of tourism and recreation pins) many participants mentioned that they felt that Lake Illawarra was underutilized and could be better used for tourism and recreation.

“The lake has much tourism potential...” (M34)

“This lake has so much potential...” (M32)

“Potential do a kayak/paddle board/jet ski tourism business in this area.” (M16)
Figure 15. Heat map of tourism and recreation
5.1.2 Sketch mapping interviews

Tourism and recreation were the most popular industries discussed in the sketch mapping interviews. When questioned how the ocean is currently used for economic growth every participant mentioned a form of tourism or recreation.

In general the results of the sketch map interviews reflected similar trends to the crowdsourced data, in that attitudes towards tourism and recreational varied over the study area, even for individual participants. In general, as seen in the crowdsourced maps, attitudes towards tourism and recreation were largely positive:

“I guess tourism one is nice, just to show off how beautiful the area we’re living is” - Participant Jason

“Australia is a tourist destination, so let’s capitalize on it, and I don’t mean putting hotels around the foreshore, I mean low scale.... I’m talking things like coffee shops, bait shops, jetties...” - Joe

“I’m talking now about tourism, a fisherman’s paradise” Bart

This level of acceptance was often in contrast to other sectors. For example, Jason spoke negatively about other industries that existed in the Illawarra such as shipping and ports but, was in favor of increasing tourism and recreation: “put more regulation towards fishing...shipping...put emphasis on maintaining the coastline.” He referred to recreational activities such as diving and ecotourism to promote Australia’s beautiful wildlife.

As with the crowdsourced maps, the tourism and recreation potential in the north of the study region often focused on built infrastructure and the development of facilities to support tourism, such as hospitality. The following quote from Arthur demonstrates that he sees the built and use of the natural environment (through surfing) as complementary attractions for the area.

“I’ve put two dots (for tourism and recreation) in Wollongong Harbour because that has the surfing and that also has the hospitality tourism area” Arthur
The perception that Lake Illawarra is underutilized was also supported by the sketch map interviews, but the interviews also reveal that Lake Illawarra is an area subject to contestation and conflict over how the area should be managed and conflicting uses accommodated:

“I think lake Illawarra is THE biggest overlooked item in the Illawarra, and probably one of the most underutilized areas that we have. It’s not just a big area, but a beautiful area but it’s just mis-managed I think its under-utilized and I think that its, it’s not what I would expect it to be given that the go ahead into looking into making it better.” Participant WILL

“With respect to the lake- is there a conflict between commercial fishers and tourism? I’d like to see detailed analysis showing the cost/benefit if commercial fishing were removed and recreational fishing promoted as a tourist destination” (crowdsource M/ JOE interviewee)

These participants felt that the lake has so much potential and is not being used to its best capability. When asked how the lake is under utilized participants discussed the dredging problem and lack of existing infrastructure: “The lake, which as always had dredging problems” (Trent).

Participants felt that mis-management of the lake had prevented tourism and recreation to blossom in the area. For example, Will said “they missed the boat” on the tourism and recreation opportunity.

Joe and Will, both advocates for the lake, believe there should be one lake authority that beautifies the lake through projects such as jetty maintenance. "they (council) don’t want to maintain it, why don’t they lease it…I think there’s a better way than just putting a few boards up and saying do not walk on the jetty.” Similarly Joe said “put a nice little restaurant and jetty on there”.

The sketch mapping interviews identified a more nuanced understanding of the degree to which participants were supportive of industries such as tourism and recreation. For example, in the Lake Illawarra area participants suggested the development or promotion of activities which were all low impact and low scale tourism and recreation opportunities that mostly center around recreational fishing. Participants saw the Lake as under-utilized now, but they also did not want the lake to
become damaged or polluted. Recreational activities and social activities were approved in this area but not tourism schemes that will bring an excess of people. This concern about overdevelopment and increased tourism in certain areas was a common theme throughout the research. Additionally, it was found there were negative emotions attached to existing tourism and recreation activities in certain locations.

“With tourism I would hate to end up as somewhere such as Venice, where you can’t move because of tourists...It’s a potential bad thing....” Joe

“Tourism, one negative thing I see up and down the whole coast is rubbish” -Kirstin

“yeah, and Wollongong harbour needs some relatively sensitive development, it’s got a lot of historical significance and so you wouldn’t want that to get too over developed but it’s a very pleasant place to wonder around and could probably due with a little bit of investment to make it um a bit more attractive. So like low level tourism not anything...put a circle there for a little bit of development” Daniel

“I guess our tourism industry like we do have a very very nice coastline some of the best coast in the world, so I think we should take advantage of that in terms of tourism things. In saying that- in take advantage of that I mean like... looking after it” Jason

“I think this area here (Shellharbour) is already getting out of control with the new marina” Daniel

Many were hesitant to suggest tourism as they feared littering and overcrowding. Kirstin mentioned that she moved from Sydney to avoid overcrowding and overdevelopment; “oh my god you don’t know how lucky you are, for godsake. Don’t do it, if I tried to go to a beach like Bondi, well for starters I can’t park there, its polluted, we have a sewage outlets, like no its dreadful. Its terrible.”

5.2 Renewable Energy

5.2.1 Crowdsourced data

Renewable energy was the second most common industry pin discussed in the crowdsourcing. The most popular types of renewable energy referred to by participants included offshore windfarms
and wave generators. Renewable energy was placed surprisingly close to the coast. Often renewable energy, such as windfarms, are referred to as eyesores and placed away from their homes (Gee & Burkhard 2010; Wolsink 2007). However in this study this industry was placed closer to shore.

Participants explain why they support renewable energy in Wollongong:

“I think Wollongong can be doing a lot more in terms of renewable energy” - (M19)

“I think it would suit the land aspects around this area to have an offshore wind farm placed here. It is also reasonably close to the city, so could potentially provide power easier?”

– (M6)

The highest concentration of renewable energy responses was in Port Kembla and Wollongong (Fig. 16). Several participants suggested placing renewable energy in Port Kembla due to its existing industrial atmosphere and infrastructure. Additionally, several people demonstrated negative values towards the coal industry and wanted renewable energy investment instead:

“Renewable energy should be placed here as currently it seems the only production is related to coal and oil.” –crowdsourcedM1, 4 upvotes!

“Water turbines- Potential to alleviate electricity cost for steel mill in Port Kembla. Having an untapped renewable energy resource needs to be harnessed in Australia, given that 85% of the population live within 50km of the coastline.” (M18)

“Windang is a stretch of land that is sandwiched between 2 large bodies of ocean. windfarms may be more accepted here” - (M2, 2 upvotes)

The central region was identified by other users as lower socio-economic, unsafe, and industrial which is a possible explanation as to why there is was a high concentration of renewable energy pins in the central region near Port Kembla. Additionally, the Illawarra region is associated with coal production and many participants voiced their concerns with moving away from coal, they suggested implementing renewable energy as a green replacement to the existing industry.
Figure 16. Heat map of renewable energy
5.2.2 Sketch mapping data

As with the crowdsourced data, many participants in the interviews had positive attitudes towards renewable energy. In many cases this was linked with a feeling that it was time to move away from fossil fuels and towards renewable energy.

“...you’re coming close to eventually having a world that will be covered in smog because we used up too much fossil fuels or you have eyesores that are making renewable energy.” Trent

“If we could perfect tidal power, so this one we could actually use the ocean in a positive way for sustainability so we could, over a period of time, transition out of coal” - Joe

In this project, very few participants commented on aesthetic aspects –either positive or negative – of offshore wind farms; however even those who found them to be an eyesore still were happy to see them placed in the Illawarra. When asked if a windfarm was placed in an area he would like to remain ‘untouched’ Jason said: “I’d be a lot prouder of my local community for having wind farms than being a coal dominated area”

Those participants who had neutral or negative attitudes towards windfarms did not mention the effect on wildlife and the ecosystem. However, participants who had positive attitudes towards windfarms were the ones who mentioned their concerns on wildlife such as whales and birds.

“So well let’s put down away from the migrating route. That has to be protected and they might come through here. You know whether they just be there or away from the marine life.” Kristin

“I don’t have a problem with the visual side of it, because um to me it’s the energy of that future and better than having a thumping big nuclear power station stuck somewhere and then so I’m okay with the visual side of it, as I said its just more that their impact on.. particularly bird- that’s offshore, but they also have a pretty bad impact on bats but main issue would be sea bird which are already- certainly a lot of the ones that we used to see up in here” Daniel
Despite these concerns they were still happy to see renewable energy placed in the Illawarra. When presented with the opportunity to think proactively about future Blue Economy industries, tradeoffs were made between local environmental impacts and global climate change.

5.2 Commercial fishing and aquaculture

5.2.1 Crowdsourced data

Commercial fishing and aquaculture was a less common industry discussed among crowdsourced mapping participants. Only 11 pins were placed in north and south of the study area (Fig 17), and in some cases these were about protecting an area from commercial fishing:

“I think it is important to protect the 5 islands from commercial fisheries. It's a high value place for diving, free diving, and sustainable tourism, not to mention a unique ecosystem to Wollongong. It's time to set up a marine protected area around these beautiful jewels of Wollongong.” (M5, one upvote)

“Also, there is a mussel lease being trailed which has met with very strong community opposition” (M3)

“I don't mind aquaculture off the coast of the urban, Illawarra environment, providing it doesn't threaten any protected or endangered species.” (M7)
Figure 17. Heat map of commercial fishing and aquaculture
5.2.2 Sketch mapping interviews

The lack of engagement with commercial fishing and aquaculture seen in the crowdsourced data is perhaps indicative of negative attitudes or a lack of knowledge about these sectors. In general the interviews identified that negative attitudes towards commercial fishing was common amongst participants, as well as a lack of understanding in relation to aquaculture.

Within the interviews there was consistent negative views on commercial fisheries. Arthur said: “A fishery would work great at Windang” however the participant also opposed development of fisheries in Wollongong harbour: “Being the main beach that I go to I wouldn’t want to see it.” Additionally Patrick says “like fisheries are fine in Wollongong harbour…it’s still pretty horrible though.” Although these participants generally approved of commercial fisheries they did not want to see them placed near their home suburb of Wollongong. Patrick was only happy to see small scale fishing in the Wollongong Harbour but no where else in the study area.

Concerns relating to commercial fishing largely related to mistrust in the industry, as well as concerns over industrial scale fishing or overfishing.

“the fishing industry tend to over abuse... and find loopholes around legislation that allows them to increase economic growth.” -Trent

“The overfishing to me is the big thing. In terms of the coastal commercial fishing, once again its overfishing but I don’t think its overfishing necessarily from our fishermen I think it’s the long line fisherman from other nations...So um I can’t see many bad things other than overfishing.” -Joe

“Over fishing, again not doing the right thing” -Kristin

“I’m not a huge fan of it just in general, mainly because my green leanings towards resource extraction from the ocean ... I think we could do without it” Hamish

Following questions on commercial fisheries was aquaculture. Many participants did not know what aquaculture was and needed a visual representation. When showed a picture of an aquaculture installation, Arthur said “Looks kind of ugly...” He placed aquaculture far away from
the coastline and said “because that looked ugly, that photo you just showed me, that looked like a real eyesore and it gave me a headache... Just don’t have that anywhere near here...keep it as away from the shoreline as possible.” Other participants believed that aquaculture would work better in less touristy/populated areas such as Port Kembla and Windang area. “I think you can do it on a much larger scale in Port Kembla” (Patrick). This was another industry where participants (if they cared) placed aquaculture away from their home suburbs.

Due to the negative attitude towards commercial fishing, aquaculture was seen as the “lesser of two evils” by Hamish. He was happy to see aquaculture grow anywhere as well. However, Bart showed concerns about the environment.

“I think that from my limited knowledge of sustainable fish farming, aquaculture, there’s a lot that could be done with that... so I think that a lot could be done to ensure that aquaculture is being conducted in a manner that’s not harmful to the environment.”

Aquaculture has a higher level acceptance compared to commercial fishing, as shown by Jason, when asked which he preferred he chose aquaculture because: “its just a lot more easily regulated, sustainable, environmentally friendly.”

5.3 Shipping and Ports

5.3.1 Crowdsourced data

Pins relating to shipping and ports were clearly linked to the existing port location of Port Kembla, and to a lesser extent the site of a new marine in Shell Cove (Fig 18). Almost all responses for shipping and ports (7/8) were placed in Port Kembla with the exception of one placed at Shell Cove. This was clearly linked to a desire to make use of and capitalize on existing infrastructure.

“minimize adverse environmental consequences by using already established infrastructure” (M9, one upvote)

“Keep ports here infrastructure already exists” (M6) “established port” (M7) and “this industry placed here due to existing facilities” (M3)
“I think that a massive port is a waste of a beautiful coastline, however I realise that there has to be ports. It would be most reasonable to keep the current port here if there is no plan to remove it” (M8)
Figure 18. Heat map of shipping and ports
5.3.2 Sketch mapping data

Shipping and Ports industry has mixed responses from interview participants. Respondents were hesitant to fully accept the industry and often expressed concerns, particularly related to the environmental and visual impact:

“So I have a bit of a negative stigma towards that... I’m assuming these big ships produce their fair share of pollution” - Arthur

“it would definitely be a lot nicer coastline if it doesn’t have ships and things sailing and polluting it 24/7” - Jason

“I suppose there’s some pollution problems from shipping” Daniel

As with the crowdsourced data, sketch mapping interview participants placed shipping and ports in Port Kembla, despite their views towards it. Those in support of these sectors were interested in maintaining the existing industry where it already exists. Other respondents spoke of building on the success of what Port Kembla does well. For example, some respondents said:

“I think that Port Kembla should be used as a base port for a lot of commercial stuff”- Bart

“Well Port Kembla is already an established deep water port, so it’s already got the infrastructure there and it’s better to keep it where it is rather than extending it along the lake” Trent

“I am of the opinion that since it’s already there, the infrastructure’s already there, it makes sense that we should retain ports and what not, and Port Kembla, you know, that makes a lot of sense. Why bother fucking up more of the coastline to achieve what you already have.”- Hamish

Similarly JOE felt that Port Kembla was “…an effective way to move goods...so if you’re going to have a globalized economy where you’re having manufacturing offshore and having all those things.” Port Kembla was seen as an opportunity to concentrate industrial activity and a spatial fix for ‘dirty’ industries. This theme will be explored in the chapter 6.
In general, participants accepted shipping and ports over other forms of transportation, such as land based or aerial transportation, and also referred to the long history of the port in the region:

“Shipping to me is a good thing, its not a high pollutant from what I understand in this area, and we have a long shipping history here for many many years...we have a highly regulated shipping industry.” -Joe

“I’d prefer it to moving shit around by planes. So yeah, I think that’s slightly more green if I’m completely honest with you” -Hamish

5.4 Extraction

No pins were placed for resource extraction on the crowdsourced map. When sketch mapping participants were asked about extraction all had negative attitudes towards examples given (e.g. seabed mining), and were reticent to locate a spatial preference. Many people did not want it in the Illawarra region at all and for the one who did, he put it as far off the coast as possible.

“Of the ocean? I don’t think it’s ideal, yeah, I just don’t think we need any more fossil fuels, yeah, I’d probably protest it.” -Hamish

“I’ve got a bit of a problem with the mining thing, because it’s going to change the water, and it looks much uglier than the sea bed one. And I thought the sea bed, sorry, I thought the aquaculture was ugly. The sea bed one is worse.” -Arthur

“Well what I’ve seen of that industry over my lifetime is it’s bloody horrendous, it’s a disaster...” -Bart

“Absolutely appalling. Needs to stop. I find out that that was in any shade going to come to the Illawarra I would oppose that with every part of my being. That strong.” KRISTIN “Mother earth... she’s cranky... the storms are more violent, the days get hotter earlier in the season, or floods.. It's just extremes of everything”

“oil industry no. There’s something about it which I don’t like and the pollution potential. It’s old technology. I’d say no to that anywhere” Daniel
“the oil drills worry me, only because I’ve seen what can happen. And people say ahh that chances of that happening, but I said yeah but if that was the chance and did happen. Its massive recovery. Sometimes it can be 10,20,30 years before... that would worry me as far as oil extraction goes.” Will

“I’d cancel our shipping because most of it just the shipping of coal and I don’t really like living in a town where its main industry is something I’m so against, mind you, we do need it but whatever...I’m like really cool with most of the industries we have as long as their is stronger regulation on sustainability...except for extraction..it’s dumb” -Jason

Other industries - Seaweed farms

In the sketch mapping interviews participants were asked how they would feel about seaweed farms. It was an industry that most participants were not familiar with and needed picture examples. People were happy to see seaweed farming placed close their homes or near a valued place. When prompted how participants would feel with the development of seaweed farms participants said:

“I’m happy with seaweed farms being closer, in the same sort of area as the wind farms (Windang)”. Arthur

“seaweed farms, I would suggest...I’m no expert but south of Kiama...somewhere in this area around Shellharbour...’cause there’s a lot of kelp and that growing there, so if the kelp is growing seaweed should naturally follow. You might even find that if it were a clean industry somewhere in the lake” Bart

“Great idea- we just need to do it in a bigger way... let’s put it all up with the industrial. Keep it centralised. Because this area is never going to go, not in my lifetime” - Kristin

Seaweed farms had a high level of acceptance from community members and was also seen as a solution to combat the ‘dirty’ industries associated with Port Kembla. This was another industry where participants felt that Port Kembla operated as a spatial fix.

Conclusion
The responses to both the crowdsourced and sketch mapping interviews demonstrate a wide variance in support for different ‘Blue Economy’ sectors, which may reflect differing levels of ‘social license to operate’. Social license to operate is the continuous approval and acceptance from local stakeholders of an activity happening within their area (Moffat et al 2016). Social license to operate is not a legal contract; instead it is a social contract, that is still a necessity to a new development (Kelly, Pecl, & Fleming 2017; Moffat et al 2016). Social license to operate has developed as a concept in response to greater public scrutiny on corporate activities, where industries are now being held to greater account for any damage to environmental or social values that they cause (Bice & Moffat 2014).

At present, social license to operate is measured through a spectrum from withdrawal to identification (Boutilier & Thompson 2011). The four levels are withdrawal, acceptance, approval, and then identification as the last level (Boutilier & Thompson 2011). The full spectrum is detailed below:

- **Withdrawal**: industrial activities are in danger of being denied or rejected
- **Acceptance**: the industrial activity is seen as legitimate but hesitant to support
- **Approval**: industry is found to be credible and has gained local stakeholder approval
- **Psychological identification**: a high level of trust exists and stakeholders identify the contribution of the industrial activities to their interests (Boutilier & Thompson 2011; Boutilier, Black, & Thompson 2012)

When considering this spectrum of SLO, it can be seen in this study that different sectors are currently enjoying differing levels of support.

Participants were seen to approve of the maintenance and development of tourism and recreation. Stated concerns about the impact of over-tourism, resulting in littering and overcrowding would suggest the industry still has some degree of vulnerability in relation to SLO, however in general support was very high. This may reflect the crucial role the ocean plays as
a feature or selling point for Australia’s broader tourism and recreation industry (Mason et al. 2010).

Renewable energy was also an accepted industry, approved by all participants. The support from this industry was unexpected because often renewable energy, especially offshore windfarms, have negative attitudes towards the industry. Other studies found resistance in the development of offshore windfarms because they claimed it a visual and noise pollutant (Hall 2014; Wolsink 2007). At this stage discussion of renewable energy in the Illawarra region is purely hypothetical – as no plans currently exist to develop this sector. However, the participants involved in this study would appear to consider the industry as approved in relation to SLO.

Seaweed farming was also an approved industry with no opposition from participants. This industry is a new idea and many participants had not previously heard of it. Participants approved of the industry, however placed it mostly in Port Kembla. Some placed the industry closer to their home or places of significance. This industry could be vulnerable to withdrawal of social licence to operate if the industry was placed closer to participants’ homes and places of significance.

Commercial fishing was an industry that was tolerated or accepted, but vulnerable to losing social license to operate. Commercial fisheries are often rejected, especially by recreational fishers, because it is an extraction industry and seen as environmentally harmful (Kelly, Pecl, & Fleming 2017). Aquaculture was found to be a mostly accepted industry and preferred over industrial large-scale commercial fishing (Thomas et al. 2018). Other literature found that aquaculture was seen as exploitive and not trusted, which was found to be the opposite in this study (Kelly, Pecl, & Fleming 2017). Additionally, it is a common finding that participants who felt uncomfortable with the industry had a limited understanding and knowledge on the activity (Kelly, Pecl, & Fleming 2017).

Shipping and ports were accepted but participants voiced concerns and negative attitudes towards the industry. Participants found that shipping was a slightly ‘greener’ option and was regulated to promote environmental sustainability. The shipping industry was found in other literature to be a supported industry that can address challenges with community acceptance (Voyer and van
Leeuwen 2019). The tendency for participants to isolate the industry to Port Kembla and away from their home suburb may suggest that significant expansion of ports and shippings into new areas would be more problematic than growing or maintaining the sector within its existing footprint.

Extraction of minerals and fossil fuels were fully rejected by participants. Extraction industries often lack community approval and acceptance, which was found to be true in this research (Bice & Moffat 2014). Participants said they would protest the industry if it was developed in the Illawarra, thus retracting social license to operate.

This industry spectrum has showed where participants approve of industries and which industries they approve of being developed or maintained in the Illawarra. The majority of industries were accepted in Port Kembla with the exception of extraction and tourism and recreation. Tourism and recreation was widely accepted and was the least likely to experience community opposition. Extraction experienced complete rejection from participants, with responses explicitly stated they would protest the development of this industry. The reasoning behind the industry spectrum and varying levels of acceptance will be explored in chapter 6.
Chapter 6. What are the influences on social acceptability?
In the Chapter 5, the industries were shown through a spectrum of acceptability. Industries ranged from varying levels of acceptance from full approval to complete rejection. Tourism and recreation received approval with certain limitations or controls required by community members. Renewable energy received a surprising level of support and approval. Fishing and shipping, however, were only tolerated and were vulnerable to community withdrawal of acceptance or rejection. Extraction, specifically seabed mining, received complete rejection from participants. Within this spectrum of approval, there was a noticeable concentration of industry placement in Wollongong and Port Kembla by research participants. This chapter will explore some of the potential reasons why some industries were approved or rejected and why they were placed in specific locations. Firstly, place of residence of participants will be explored and how that may have influenced participants. Secondly, the potential role of socio-demographic influences on participants responses is explored. Finally, the chapter will address how values may have influenced acceptance and placement of industry.

6.1 The influence of place of residence on social acceptability

The majority of participants (55%) who placed industry pins were from the northern suburbs, Wollongong and north. 24% of participants who placed industry pins were from the central suburbs (Port Kembla to Barrack Point) and slightly less (21%) were from the southern suburbs (Shellharbour and south).
Participants repeatedly placed industries they found to be ‘ugly’ away from their home suburb or valued locations (see figure 20). For example, Arthur said: “I don’t live there (Windang/Port Kembla)... that area doesn’t have an effect on me,” which is why he suggested placing industries he found to be unsightly, such as aquaculture, away from his home suburb and instead increasing tourism and recreation near himself. When questioned if he lived in Port Kembla would he still suggest industries to grow here he responded “probably not.” Likewise, when prompted where industries should grow Patrick responded “not near me...near the steelworks...out of sight out of mind.” Additionally, when questioned where to put seaweed farms, Joe, who lives along Lake Illawarra said: “it’s not going to work on the lake because the lake’s not deep enough, so I don’t care because it won’t impact me”

These participants are not completely rejecting the industry; however they were against the idea of it being developed near them. They did approve of the industry given as long as it was placed away from their place of residence and everyday activity space.
Figure 20. Heat map of industries placed by participants from northern suburbs
6.2 The relationship between socio-demographics and social acceptability

Chapter 5 alluded to the negative values associated with Port Kembla and the ‘dirty’ industries that exist there, such as the steelworks and shipping, which influenced participants to suggest keeping the area ‘industrial’ (see fig 21). Port Kembla is a lower socio-economic area as residents have a lower median income compared to the rest of New South Wales and Wollongong (ABS 2016). The theme of keeping Port Kembla industrialized was prevalent throughout the study, however the reasons behind this preference appeared to be mixed.

Participants across both the crowdsourced mapping and the interviews also consistently spoke very poorly of areas within the central region of the study area, such as Windang and Port Kembla.

“This industrial area looks pretty terrible...” Marker 1

For some the lack of amenity, and low socio economic status appeared to be a motivator for ‘hiding’ other unsightly industries. For example, Arthur said “Windang is a bit of a hole” and placed industries such as aquaculture, windfarms, and seaweed farms near Windang. He believed that industries would be more accepted there:

"there’s nothing really to look at there...Port Kembla has already got its industrial feel, so does Windang... they’re all pretty low in, how do I say this politically? Low income demographic... I want to keep them industrialized...”

He also opposed the development of tourism and recreation in Windang:

“new things, like the high earning stuff, like the Wollongong Harbour is where it brings in a lot of tourism, and the new places like Shell Cove keep them untouched, and keep the value up high within. There’s no point sprinkling a little bit of industry on each coastal town... why don’t you just double down on the ones that already have industry in it.”
Similarly, Patrick clumped industries such as commercial fisheries and shipping and ports and placed it in Port Kembla because “it’s already destroyed anyway.” He suggested keeping these industries away from places that are valued for tourism and recreation such as Shellharbour and Wollongong.

Other participants had similar views but offered quite different reasons for their preferences. In particular a number of crowdsourced mapping and interview participants preferred to see Port Kembla as a place of opportunity, and an area in which growing industrial development would address socio-economic inequalities in the region.

“The Whole steelworks area is in rapid decline and a re-imaging of it as a site needs to be undertaken. Its a crucial part of Wollongong’s history and with a revamp could continue to be. It first needs to become a safe place for people to use but after that the possibilities for new innovative industries or businesses are endless. Wollongong as a whole should focus on making this the proud center point of our city once again”.

Marker 2 felt that Port Kembla is in decline, but improvement needs to be made for the industry to feel safer and the development of industry could be a catalyst the rejuvenation of the city. Similarly, Bart felt that industry could improve the area:

“Port Kembla could become a hub. It is currently a town that is a disaster. It was once a thriving town, because of the trade, the shipping trade, now you could fire a cannon down there and not hit anybody”.

Finally, a number of participants nominated Port Kembla for more industrial style development as a means of spatially organizing, or separating, industries that they felt were incompatible. In particular participants appeared to make a strong distinction between ‘dirty’ and ‘ugly’ industries, such as shipping, the steelworks, renewable energy and fishing/aquaculture and more aesthetically sensitive sectors such as tourism and recreation.
For example, Daniel placed a wave generator in Port Kembla because “it’s pretty industrial... Port Kembla isn’t a place they go to” but opposed wave generators near the Five Islands because “this to me is an important place.” He felt that the Five Islands is a popular scuba diving destination, while Port Kembla lacks tourism so it would not harm the area for industry to be placed there. These sentiments were echoed by participants across both sources of data: “Desalination put it near the steelworks. It’s already industry, wack it in there...(and) wave generators could be used here as well...because that beach there isn’t our most beautiful beach...I say put it all together (industry)”. Kristin

“There is already such a huge industrial build up here, if there is no plan to remove it I think it might as well be used for something good like renewable energy. Since there is already so much then no one should complain about the ‘eyesore’”. Marker 55
Figure 21. Heat map of all industry except for tourism and recreation
6.3 The influence of values on social acceptability

Comparing valued places and industry preferences revealed that a strong presence of aesthetic values often led to the promotion of low scale industries such as tourism, while limiting other industries (map to demonstrate). Opposingly, aesthetic locations sometimes prevented any industry, including tourism. Often industry was placed away from places of significance and in areas that participants’ identified as industrial.

6.3.1 Aesthetic promotes tourism

Wollongong was popular location for being valued for aesthetic reasons and was simulatenously a hotspot for tourism and recreation pins. Participants felt that the beauty of the coast should be shared. For example Arthur said;

“We have good oceans, I don’t think that’s a secret, and I think we should let other people know about that. And if it brings more people into the country, then that’s more money coming into our domestic currencies”.

Similarly, Jason said;

“We do have a very very very nice coastline.... I think we should take advantage of that... and show the rest of the world how lovely our coast in and what we have to offer.”

Jason and Arthur mentioned utilizing Australia’s beautiful coast to entice tourists and increase economic growth. In regards to the Blue Economy Bart said:

“The Blue Economy, it’s all related to tourism for me. We have magnificent seascapes in and around this area.”

Bart explained that the he believed the Blue Economy should focus on tourism because of the aesthetic value. Likewise, Arthur felt that coastal aesthetics could support economic growth:
“I very much agree with the notion that yes, we should use the oceans as a selling piece, as a bit of background image to sell other businesses around our oceans. I very much agree with it.”

When pressed on what type of industries should be placed near the coast, Arthur suggested tourism offerings, like situating restaurants along Lake Illawarra because he thought the view would be an inducement for restaurant customers, thereby increasing business revenue.

Tourism and recreation was the most common industry discussed and was accepted by local stakeholders. This may be because participants felt familiar with tourism and recreation; community members have experienced this industry and understand what it might entail. Tourism and recreation was also seen as an industry that can be low scale such as cafes, or larger scale such as hotels and amusement parks; thus allowing a spectrum for participants to choose from.

6.3.2 Aesthetic values limit industry

Lake Illawarra was also a highly valued location among participants and a location where participants felt that would benefit from tourism and recreation, but not other industries. Participants frequently mentioned that Lake Illawarra was not being properly utilized and not meeting its potential. Joe, who believed the lake should be used for tourism opposed other industry. When questioned which industries Joe would feel comfortable along the lake he rejected other industries (shipping and ports, commercial fishing, aquaculture, and renewable energy) except for tourism and recreation: “not on the lake...otherwise go for your life.” Similarly Arthur opposed other industry, (shipping, fishing, and aquaculture) besides tourism and recreation.

“It’s more to do with the eyesore of having something right in the middle of the Lake. Especially if I want businesses surrounding the Lake, hospitality industries around the Lake, to view the Lake. You want to look at the Lake not the people working on the Lake... I feel like there should be more restaurants overlooking Lake Illawarra”
For some participants, aesthetic values also influenced their views on further development of existing tourism and recreation offerings, particularly based on their first-hand experience of existing tourism impacts. For example, Kristin felt that Kiama was aesthetically pleasing, but further tourism would “get too over the top” and “let’s leave it. It’s beautiful”. She also mentioned that with the influx of people comes increased littering and that the litter is the worst during holiday times. She enjoyed the beaches in the Illawarra compared to Sydney because they are untouched and beautiful:

“oh my god you don’t know how lucky you are, for godsake. Don’t do it, if I tried to go to a beach like Bondi, well for starters I can’t park there, its polluted, we have a sewage outlets, like no its dreadful. Its terrible.”

6.3.2 Trading off values; the case of renewable energy

The sketch map interviews uncovered trends in the way participants ‘traded off’ competing values, in order to give priority to those that were most important to them. In particular, there was general support for renewable energy infrastructure such as offshore wind, despite acknowledgement by most that they would impact the aesthetic values of the region (see figure. 22)

Jason, for example, felt windfarms were a bit of an eyesore, said even if they were developed in a valued place he would be “a lot prouder of my local community for having windfarms than being a coal dominated area.” Jason approved of this industry, despite thinking the windfarm would tarnish the pristine and untouched look of the coast, because he was willing to negotiate pristine values for environmentally friendly power generation.

Similarly, Hamish shaded the whole map with areas he would be happy to see windfarms developed.

When prompted if windfarms make a valued place lose aesthetic appeal Hamish said:

“No. I don’t think a windfarm makes the place any less, like, aesthetic, if it’s a beautiful beach, it’s a beautiful beach, like, I couldn’t care less. I’d much rather have a sustainable
Hamish is clearly identifying that he prioritises a move to a more sustainable future above other values. Other participants had similar views but placed some boundaries around where these tradeoffs would be acceptable to them. Patrick, for example, felt comfortable with windfarms “as long as I can’t swim to them.” Other studies found clean energy as the strongest argument used by people who were supportive of offshore windfarms (Gee & Burkhard 2010; Wolsink 2007). Hall (2014) found that local stakeholders are willing to negotiate an acceptable trade-off for community approval.
Figure 22. Sketch map of renewable energy and valued places (overlapping areas shaded darker)
6.3.3 Socially unacceptable: the case of extraction

The extractive industries of seabed mining and oil and gas did not receive any support through the crowdsourced map and were absolutely rejected by interview participants. They indicated a lack of trust in industry, and regulators, as a primary reason for this rejection.

For example, Kristin felt betrayed by the government “our government is in bed with the coal industry”. She was in opposition because she did not trust either the government or businesses to address the environmental concerns associated with extraction. Patrick also rejected the industry: “unless they fix every fail safe”. This indicates Patrick’s ambivalence towards the industry. Will also intimated that he did not approve of extraction “the oil drills worry me, only because I’ve seen what can happen.”

These responses to extraction are perhaps explained by the tendency for the research participants to prioritize aesthetic, recreation and therapeutic values over economic values, which were seldom mentioned in the research. This is supported by other research which indicates that the public idealizes the ocean as untouched, fragile, and pristine, which is why they find it attractive (Gee & Burkard 2010; Mason et al. 2010). Additionally, people hoped the ocean will remain something that human cannot conquer with fixed structures such as oil rigs (Mason et al. 2010). When extraction was mentioned in other studies, similar values around pollution, mistrust, and overuse were discovered (Gee & Burkhard 2010; Voyer & van leuween 2019).

6.4 Conclusion

Exploration of the potential reasons why participants responded differently to different sectors identified three important insights that are of relevance to Blue Economy planning.
6.4.1 Environmental Justice and Marine Spatial Planning

Participants did not fundamentally oppose all the industries; however, they voiced their concerns about impacts such as visual appeal and harming the environment. In many cases the industries that participants were least accepting of were placed in Port Kembla; an area identified as industrial and low socio-economic.

The tendency for participants to place undesirable industries in an area of social disadvantage is consistent with similar research. For example, Hagget (2011) found that industry was supported in areas that were seen in decline and run down because it was believed that the industrialization would promote the economy and revive the area. Additionally, Port Kembla is perceived as a lower socio-economic area and often community members push for industry to be placed in such areas because it lacks political and economic resource to protest the activities (Wolsink 2006). This is an important consideration for planning processes. In particular, this raises questions relating to environmental justice and ‘who has a voice’. The issue of ‘who has a voice’ was identified in this research as it was exceedingly difficult to get Port Kembla residents to engage and participate (see Appendix B). As industry attempts to avoid community opposition and in turn, loss of social licence to operate, industries must decide where to develop. Often industry negotiates with communities, which is mediated by government authorities; this brings into questions of fairness, justice, and who has power (Wolsink 2006; Eranti 2017).

6.4.2 Not in My Backyard...maybe

Placing industry away from homes or valued locations relates to a concept referred to as ‘not in my backyard’ (NIMBY). This concept refers to opposition of industry in a particular location due to place-based attachment, which might otherwise be approved if it were to be placed elsewhere.
Eranti (2017) identified three forms of valuation within NIMBY conflicts. The first valuation was characterized as ‘self interest’, such as concerns that industry would affect assets such as property values (Eranti 2017). The second valuation was characterized as an argument around ‘public justification’, with arguments centered around the greater good of the community (Eranti 2017). The third valuation focused on strong place-based emotional attachment and was termed ‘familiar affinities’ (Eranti 2017). The two common valuations identified in this study were public justification and familiar affinities, as participants justified their preferences to locate ‘ugly’ industrial uses in areas where they might address social inequality and concentrate visual impacts in a single area, to avoid loss of amenity in other areas.

NIMBYism, on its own, is an insufficient explanation of the variations in acceptability across sectors. This is demonstrated by the somewhat contradictory responses to the placement of renewable energy in the region. For example, windfarms, which are often considered ugly and intrusive, were not only placed in Port Kembla but also near participants’ home suburbs. This was because people were willing to trade-off the pristine untouched view for environmental benefits. This also disputes the ‘not my backyard’ narrative that people find windfarms unappealing and do not want them placed near their homes (Haggett 2011; Wolsink 2007).

**6.4.1 Social values as a driver of acceptability**

The results of this research indicate that social values place a crucial role in influencing the ways in which people respond to economic uses and activities in their area. Tourism and recreation received approval because participants felt that industry complimented, or at least did not impact, the important aesthetic values they prioritized. This may also be because participants felt familiar with tourism and industry and community members have experienced this industry and understand what it entails. Tourism and recreation began to lose its level of acceptability amongst participants if it was seen to impact on values relating to solitude, peacefulness or beauty.
While industries such as fishing and shipping and ports were condoned, they enjoyed a lower level of acceptance and often were preferred to be away from participant’s home suburb. These tolerated industries were seen as high impact and industrial, which resulted in participants placing these industries in an area they identified as industrial and low socio demographic.
Chapter 7. Conclusion

Image 7. City beach, Wollongong
The thesis provided a review of the Blue Economy definition and the contention centred around what is ‘blue’ in the Blue Economy. Following the Blue Economy definition the thesis provides an in-depth review of values and then a brief overview of qualitative GIS. The thesis illustrates local stakeholder’s values and spectrum of acceptance of industries through crowdsourcing and interviews. This allows the definition of the Blue Economy and potential ocean industries to be informed by the views of community members instead of corporations or politicians. In conclusion this chapter summarises key findings, how the research aims were addressed, and possibilities for future research.

7.1 Research aims and findings

Chapter 4 identified local stakeholder’s values. This chapter begins to address the question of how values influence community acceptance of industries. It was found that values often interlinked and overlapped spatially. Values such as aesthetic, recreation, and therapeutic were found to be the most common values, which often interlinked with each other. Often participants identified a location as beautiful which encouraged recreational activity and that in turn improved their mental health. Despite participants’ overall appreciation and positive feelings for the coast there was a theme of vulnerability and overuse of the coast. These fears or concerns were often identified in valued places as they were the result of human interaction and use. The findings from this chapter allowed us to understand why and where certain Blue Economy industries were accepted or rejected.

Chapter 5 demonstrated that among participants there was a spectrum of acceptability. This chapter provided insights into which industries would be accepted and where within the Illawarra region. Chapter 4 identified concerns with the vulnerability of the coast and negative emotions to places that were considered by participants as overdeveloped, which in turn influenced participants acceptance of tourism and recreation. Tourism and recreational activities were approved, however required certain controls or limitation on development. This industry was identified to be accepted
near places of importance and was not vulnerable to loss of social licence to operate. Renewable energy was also found to be an approved industry and often accepted near participants’ homes or places of value. Fishing and shipping was vulnerable to loss of social licence to operate. Participants had negative attitudes towards the shipping industry and only accepted the industry because of the existing infrastructure in Port Kembla. Commercial fishing was tolerated but vulnerable to community opposition, while aquaculture was accepted, but away from places of importance. The extraction industry received complete rejection and was not accepted anywhere in the Illawarra, except by one participant who placed it as far away as possible. The approved industries, tourism and recreation, and renewable energy were approved to be developed near places of importance. While the tolerated industries were concentrated in Port Kembla. Chapter 6 addresses why concentration occurred in these areas.

Chapter 6. addressed the question of how values influence community acceptance in relation to the different sectors of the Blue Economy. This chapter identified that areas that were valued for aesthetic reasons were limited to low scale tourism and recreation or no industry at all. The remaining industries, participants placed away from their homes or valued places, which was a concept identified as ‘not in my backyard’. Port Kembla was identified as a spatial fix for high impact or environmentally harmful industries. This chapter support ‘not in my back yard’ literature that often community members will tolerate an industry in an area that has lower socio-demographic characteristics and less likely to have the power or voice to refute the industry. The acceptance of renewable energy was identified as an outlier as renewable energy development often contributes to ‘not in my backyard’ narrative. The acceptance of renewable energy suggests that participants were willing to trade off aesthetic values in preference for environmental values as participants were willing to negotiate a disturbed horizon for environmental outcomes.

This research found that aesthetic values were a dominant value which could significantly restrict the development of the Blue Economy. Community narratives demonstrate that the lens of ‘ocean
as good business’ would be strongly opposed. However, to a certain extent the community narrative counteracts all approaches of the Blue Economy, given a general reluctance to embrace growth in any sector.

### 7.2 Future research agenda

The method of incorporating social values into spatial planning showed that values were a strong motivator for placement of industry; however limitations and challenges emerged. Limitations of this study were encouraging engagement, challenges with people thinking proactively instead of reactively, and representation.

The recruitment process for both the crowdsourcing phase and interview phase was particularly challenging. Repeated attempts of online engagement were made to no avail. In a world where online engagement is seen as a panacea for community involvement in planning processes, this study suggests that more concerted effort and new strategies will be required, especially if social values are to be incorporated into Blue Economy planning at scale. This issue of poor online engagement also led to a skewed demographic profile. A majority of participants were young university students and the data lacked responses from Port Kembla residents.

There was a perceived lack of interest in the topic as it was hypothetical and required participants to think pre-emptively. To address the limitation of encouraging participants to think of future visions, hypothetical images may need to be provided (e.g. via 3D visualisation) so participants can view and imagine how future Blue Economy developments might affect them.

Finally, marine spatial planning often does not include social values into planning; however values were found in this study to be a strong motivator of community acceptance and should be included in future research. These results are consistent with the findings of Voyer and colleagues (2015) who found that conflicting ideas around the use and management of coastal zones are most likely related not to different values, but by differences in the way these values are prioritised. Future
research should focus upon how communities prioritise certain values over others and make trade-offs when thinking about blue futures.
Reference list


42. Hall, NL 2014, ‘Can the “social licence to operate” concept enhance engagement and increase acceptance of renewable energy? A case study of wind farms in Australia’, *Social Epistemology*, vol. 28, no. 3-4, pp. 219-238.


56. Klain, SC and Chan, KMA 2012, ‘Navigating coastal values: participatory mapping of ecosystem services for spatial planning’, *Ecological Economics*, vol. 82, pp. 104-113


82. Voyer, M, Gollan, N, Barclay, K, and Gladstone, W 2015, “It’s a part of me”; understanding the values, images and principles of coastal users and their influence on the social acceptability of MPAs’, *Marine Policy*, vol. 52, pp. 93-102.


Appendices

Appendix A) Facebook groups posted to:

1. UOW Students Buy and Sell
2. Wollongong Hospo Crew
3. Shellharbour Whale and Wildlife Sighting
4. Weerona General 2017
5. Weerona General 2016
6. Wollongong Student Climate Alliance Forum
7. Kiama community page
8. UOW not buy and sell
9. Illawarra Surfboard Buy Swap and Sell
10. Our Oak flats
11. Kiama remembers, a history of kiama
12. Surfrider UOW
13. Kiama Whale and Dolphin sightings
14. North Wollongong Surf Club Members
15. Shellharbour surf life saving club
16. LAKE ILLAWARRA PROTECTION TASKFORCE
17. Kiama Community Forum
18. Sustainable Illawarra
19. Wollongong Climate Action Network
20. Plastic Free Kiama Community
21. Port Kembla Fishing

22. Our Shellharbour & Oak Flats

23. Shellharbour and Surrounds Community Page

24. Port Kembla, warrawong and surrounding area

25. Illawarra Australia

26. Illawarra Buy Swap and Sell

Appendix B) Recruitment attempts
Itzel’s Post

[https://accessgeo.mysocialpinpoint.com/illawarravalues#](https://accessgeo.mysocialpinpoint.com/illawarravalues#)

cheers!

Social Pinpoint - Illawarra Values
A Place to engage your Community

Barry Green
No way would I ever help lefty uni students

14m  Like  Reply
Itzel Echeverria-Gonzalez

This is an excellent space to share what you want with lake Illawarra

Itzel Echeverria-Gonzalez

Let me know what industries you would like to see in Lake Illawarra (if any)

Ocean Industries in the Illawarra

Thesis on possible development of ocean industries in the Illawarra

Thesis on possible development of ocean industries in the Illawarra

Study area: Wollongong Harbour to Kiama

- Ocean industries: commercial fishing, recreational fishing, aquaculture, renewable energy, deep sea mining, tourism and recreation etc.

- If interested in participating please email
  j3203402@unsw.edu.au

- OR for online web-map
  http://oceanscience.unsw.edu.au/illawarra/
Hello everyone, I am a UCW student looking for participants for my thesis on ocean industries. Anyone is welcome to participate as long as you are familiar with Wollongong Harbour so Kiama. If you can’t commit,...

Hello everyone, I’m a student working on her thesis at UCW and would love to here your thoughts on the future of ocean industries. Regardless of... See More

Hi everyone. I would greatly appreciate if people could fill out my web-map for my thesis on ocean-based industries. This is all hypothetical... See More

Hello everyone, Through this web-map there have been comments on placing off shore renewable
Hi!

I'm a student at UOW working on her thesis and I'm looking for people who live in the Illawarra (Wollongong to Kiama) and are willing to participate in a brief interview. The interview would be around an hour and I would just be gathering information on places you value along the coast and any ocean industries you'd like to see in the Illawarra (if any). You don't need to be an expert on ocean industries, I'm just looking for any community member who values the coast!

If you'd like to participate comment on this post or send me a message 😊

Cheers
Appendix C) welcome screen from crowdsourced with participant information sheet
Appendix D) Flyer handed out for participant recruitment
Ocean Industries in the Illawarra

• Participants needed for University of Wollongong thesis
• Thesis on possible development of ocean industries in the Illawarra
• Brief 1 hour interview on what ocean industries Illawarra community members would like to see grow or be maintained in the Illawarra
  • Study area: Wollongong Harbour to Kiama
  • Ocean industries: commercial fishing, recreational fishing, aquaculture, renewable energy, deep sea mining, tourism and recreation etc

• If interested in participating please email ieg284@uowmail.edu.au
• Or fill this online web-map https://accessgeo.mysocialpinpoint.com/illawarravalues#
Appendix E) Heat map of therapeutic
Appendix F) Interview outline

**Blue Economy and Social License to Operate in the Illawarra Region**

Providing consent: participants will first be asked to formally agree to the interview, by signing a consent form

Introduction: can you please tell me a little bit about yourself?

- Home suburb (place on map)
- How long have you lived in the Illawarra
- What do you know about the Blue economy

Places of Significance:

- Can you show me on the map some places on the coast or in the ocean of significance to you
- Now can you tell me why these places are important to you
- What is your favourite place on the coast or in the ocean and why

Blue Economy activities

- Do you think the ocean should be used for economic growth?
- Can you name three industries, business or economic sectors that you think rely on the ocean?
- What do you think about these sectors?
  - Are they present in the Illawarra region?
  - Do you think they should be present in the Illawarra region? Why/why not?
  - What are some of the good things you think that sector provides the Illawarra?
  - What are some of the negative things about that sector or Do you have any concerns about the operations of that sector (provide details?)
  - Can you draw on this map a place where you *would* be comfortable seeing that type of activity operate, and a place where you *would not* be comfortable seeing it operate
    - Why there
    - Would (that activity) influence you visiting or using that location
- How do you think the ocean can be used for environmental sustainability?
  - Now which of those activities would you like placed in the Illawarra and where would you like it placed
  - Why there
  - Would (that activity) influence you visiting that location
- How do you think the ocean can be used for social inclusion?
  - Now which of those activities would you like placed in the Illawarra and where would you like it placed
  - Why there
  - Would (that activity) influence you visiting that location

- I am going to give you some examples of new ocean based industries that are emerging around the world. Would you support these being pursued in the Illawarra? If so where (mark on maps??)
- offshore wind farms?
- Offshore aquaculture farms, eg fish farms?
- Seabed mining?
- Seaweed farms
- Do you have any ideas for other marine industries that we should grow in the Illawarra?

Conclusion
- Is there anything else you would like to add

Appendix G) Consent Form

**CONSENT FORM**

*The Blue Economy and Social License to Operate in the Illawarra Region*

RESEARCHERS: Itzel Gonzalez, Michelle Voyer, Chris Brennan-Horley

I have been given information about the research project ‘*The Blue Economy and Social License to Operate in the Illawarra Region*’ and discussed the research project with Itzel Gonzalez, who is conducting the interview for her honours thesis at the University of Wollongong.

I have been advised of the potential risks and burdens associated with this research, which will involve participating in a 60 minute interview, and have had an opportunity to ask Itzel Gonzalez any questions I may have about the research and my participation. I understand my involvement will be anonymous and the information I provide will be deidentified and not available for everyone outside of the project team. I understand that my participation in this research is voluntary, I have been invited to participate and I am free to withdraw from the research at any time. My non-participation or withdrawal of consent will not affect my relationship with the University of Wollongong.

If I have any enquiries about the research, I can contact Itzel Gonzalez (ieg284@uowmail.edu.au) or if I have any concerns or complaints regarding the way the research is or has been conducted, I can contact the Ethics Officer, Human Research Ethics Committee, Office of Research, University of Wollongong on +61 2 4221 3386 or email rso-ethics@uow.edu.au.

By signing below I am indicating my consent to (please tick):

<table>
<thead>
<tr>
<th>Please tick the appropriate boxes</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have read and understood the project information sheet.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I agree that Itzel Gonzalez has answered all my questions fully and clearly.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I agree to take part in the project. Taking part in the project will include being interviewed and audio recorded.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I understand that my taking part is voluntary; I can withdraw from the study at any time and I do not have to give any reasons for why I no longer want to take part.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I understand my personal details such as phone number and address will not be revealed to people outside the project.</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
I understand that my interview may also be used in future research projects under the same conditions of de-identification, privacy, and confidentiality of the information that I have requested in this form.

I agree that my words may be quoted in publications, including journal articles, reports, web pages, social media posts and other research outputs. Please circle the relevant options:

- I would like to review my full transcript prior to publication of the above
- I would like to review any direct quotes from me prior to publication of the above

Signed

__________________________________________________________________________

Date

__________________________________________________________________________

Name (please print)

__________________________________________________________________________

Appendix H) PIS

PARTICIPANT INFORMATION SHEET

TITLE: Imagining a Blue Future

PURPOSE OF THE RESEARCH
This is an invitation to participate in a study for an honours project (Bachelor of Science: Human Geography) at the University of Wollongong. Around the world countries are looking to their oceans to provide new sources of economic growth and development. There is a recognized need for this development to be environmentally sustainable and socially inclusive. The push for sustainable economic development in the oceans is increasingly being termed the ‘Blue Economy’. This project is particularly interested in the views of local residents about the types of activities they would or would not like to see develop in the oceans and marine spaces of the Illawarra. In particular the project aims to uncover:

- How values influence acceptance of ocean based industries?

- Where would local stakeholder/community members like Blue Economy infrastructure/activities placed?

You have been contacted as you are a community member of the Illawarra. We would love to hear your views on the potential development of a Blue Economy in your region.

INVESTIGATORS
METHOD AND DEMANDS ON PARTICIPANTS
If you choose to be included, you will be asked to participate in an interview, which will be audio recorded and last a maximum of one hour. The interview will be guided by you as the participant, but as a general guide is likely to follow the following structure:

Providing consent: you will be first asked to formally agree to the interview, by signing a consent form.

Introduction: an opportunity for you to tell me about yourself

Places of Significance: you will show me on a map places of importance to you around the Illawarra Region

Blue Economy activities: you will be asked about your thoughts any opinions about current and potential future ocean and coastal economic activities in the Illawarra

Conclusion: this is the time for you to add anything or clarify on any previous comments

The information generated through this research will be used to develop an Honours thesis and associated publications in academic journals. It may also be used in media articles, and online (e.g. social media posts). Your interview may also be used in future research projects under the same conditions of de-identification, privacy, and confidentiality of the information.

POSSIBLE RISKS, INCONVENIENCES AND DISCOMFORTS
Apart from the 60 minutes of your time for the interview we can foresee no risks for you. A transcript of your interview will be available on request if you wish to review it prior to publication. You will not be identified in any of the published material associated with this study without your approval. We will make every effort to remove identifying materials. You may request to view any material relating to you, such as direct quotes prior to publication. Your involvement in the study is voluntary and you may withdraw your participation from the study at any time and withdraw any data that you have provided up until the point of publication. You can do this by contacting Itzel Gonzalez directly. The decision not to participate, or to withdraw from the study, will not affect any current or future relationship with the staff involved in this project or the University of Wollongong. You will not be asked to disclose any intellectual knowledge or financial details unless you wish to. You will not be asked any questions which will expose you to financial or legal liability.

FUNDING AND BENEFITS OF THE RESEARCH
This study is partially funded through the School of Geography and Sustainable Communities, with in kind support provided through the Global Challenges program.
There are a number of key ways that this research is expected to provide benefits for participants and the wider community, they are:

• Providing an understanding of what local stakeholders would like in relation to the Blue Economy within their community
• Highlighting what local stakeholders believe is the Blue Economy
• Providing insight to where local stakeholders would like Blue Economy activities placed in the Illawarra region.

ETHICS REVIEW AND COMPLAINTS
This study has been reviewed by the Social Sciences Human Research Ethics Committee of the University of Wollongong (ethics application number 2019/125). If you have any concerns or complaints regarding the way this research has been conducted you can contact the UOW Ethics Officer on (02) 4221 3386 or email rso-ethics@uow.edu.au. Thank you for your interest in this study. For further information please contact Itzel Gonzalez at jeg284@uowmail.edu.au/ Michelle Voyer at mvoyer@uow.edu.au/ Chris Brennan-Horley at chrisbh@uowmail.edu.au