on the line

*revitalising place identity: a case study in Balintore,
Scotland*

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On The Line - revitalising place identity: a case study in Balintore, Scotland

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abstract

Once proud fishing villages in the North of Scotland used to be lively and industrious gateways to the ocean for much of the country's population. Modernisation and industrialisation of the fishing industry has seen a depletion of not only fishing stock but also a sense of identity that accompanied these historic coastal settlements (Scottish Government "Socio-Economic Briefing on Rural Scotland"). Balintore is a powerful example of this issue, where an ageing population has a disconnection from their distinct cultural identity (Brookfield 6). The settlement now has less than one percent of its population employed in the fishing industry (Streetcheck).

This thesis will explore how identity can be revitalised with reference to the fishing industry and grounded with the unique characteristics of Balintore, such as landscape types, cultural tradition, climate conditions and architecture. An aquacultural insertion to the site will act as a driver to feasibly revitalise the struggling economy and allow explorations into how an experience with the product can create place identity, alluding to fishing industry history. The experience of place aims to portray unique characteristics of the site, cultural traditions and an engagement with the product which associates a contextual relationship between the two.

The landscape of Scotland is intrinsically tied to the cultural identity and therefore the sense of place which people possess (Robertson 154). The fact that the identity in question is fundamentally based on a spatial relation, despite having cultural, social and economic factors, allows landscape architecture to act as a useful framework in exploring possible scenarios. This thesis will seek to once again provide an integral bond between the people and their environment which can foster a revitalised place attachment, one which will transcend generations and provide a sustainable sense of place in Scotland's future.

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preface

Born in the Highlands of Scotland, long have I had an affinity with the country of my birth. As a Landscape Architecture student I have always been inspired by the raw qualities of the Scottish environment, yet as I grow up I have witnessed the disconnection between the people and their home. The small coastal townships suffer from a neglect driven by economic downturn and industrialisation. It is within these premises which I base my thesis, to investigate what defined an ancient culture and defines a modern nation. The landscape which is now forgotten must be remembered.

The landscape "is more real than the people who inhabit it. Drowned in eternal mist, illuminated by a decrepit sun or by ephemeral meteors, it is a world of greyness."

Henry Okun, Ossian in Painting

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Tapadh leibh
(Thank You) - Gaelic

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To Scotland, and its people who inspired and motivated this thesis, I will always consider you my home and hope that this thesis offers a contribution to aiding a future which has firm roots in its past.

introduction

The decline of the traditional fishing industry in Northern Scotland has led to a corresponding decline in cultural identity and place attachment. (Scottish Government, “Socio-Economic Briefing on Rural Scotland”). This thesis aims to address a response to the change of the fishing industry, in the form of identity loss, and pursue a possible revitalisation driven by managing an industrial insertion which uses local aspects of place such as landscape types, climatic themes and cultural traditions as a medium to portray an experience with said industry. Balintore will act as a vehicle for the testing of this applied research as it exemplifies this trend in the Scottish fishing industry.

The landscape of Scotland is intrinsically tied to the cultural identity and therefore the sense of place which people possess (Robertson 154). Throughout the Gaelic language the landscape embodies a presence which transcends generations and fixates oral exchange. The fragments of Ossian by James Macpherson exemplify this concept as they portray a strong “metaphorical presence” even stronger than most characters in the poems (Okun 51). “Attachments to place are intrinsic to identity, rather than to buildings or monuments. Periods of dispossession and being psychically absent from the landscape at certain points in the past at community, collective and individual levels have influence upon ‘sense of place’ (Robertson 154). This summarizes the importance of the role of landscape architecture in addressing a sense of identity in Scotland, and one which can be applied to the loss of a practise which once unified man with landscape pat-

terns, characteristics, and rituals, such as the fishing industry.

The 2010 Highland Coastal Development Plan acknowledges the ‘Landscape Resource’ of the Highland coast and the importance of ensuring a sustainable future for its small rural communities such as Balintore and explicitly states the support of aquacultural development. The plan identifies the importance of cultural heritage and their setting within the landscape to ensure education and the “cultural identity of communities” (The Highland Council 22). This thesis explores a method in which landscape architecture can revitalise a lost identity and nurture a sustainable industry in Balintore while also engaging with the landscape and cultural character.

The design research aims to explore how the manipulation of an existing industry can be used to not only reflect specificity of place but also reinforce elements of cultural identity. This thesis is testing if landscape architecture can structure an engagement with a product which conveys an experience of place using the landscape as a medium. The long term goal is that the resulting study can be applied as a framework for the application of identity revitalisation using an industrial driver in other small and site specific localities. This will be achieved by applying an already established aquaculture method, (bouchot mussel farming) and integrate it into the site using the existing geography and physical climate to structure an economically viable model. This structure will then be manipulated and adapted to adjust to the cultural and social environment of the settlement in relation to creating a range of

Fig 1.01 Demographic statistics, Balintore

Source: Streetcheck

experiences connected to the production of the mussel. It is the remnants of the industry's past which provide cues to this thesis's application. In addition the strong cultural and identity orientated nature of the fishing practice will be expanded in the aim of achieving the revitalisation of an industry that is now lost.

In the process of executing this research, the application of the current discourse of place identity and place making will be investigated as the theoretical backbone to the design. Principally the theory of Critical Regionalism as defined by Lewis Mumford will act as a way to spatially approach the expansive literature on place making. In addition the writing of Doreen Massey and Tim Ingold provide an interdisciplinary view of the subject, one that takes into account the relationships between people, as well as the environment.

The scope of this project is defined by the application of the design driver: the industrial insertion in the form of mussel farming. However the nature of the issue is one that bridges so many disciplines that an attempt to address every facet would compromise the effectiveness of this thesis. Therefore the scope will be limited to re-vitalising place identity in Balintore, employing the experience of place to create identity. The industry forms strict parameters which influence design interventions and the way that they address place making.

Fig 1.02 Demographic statistics, Balintore

problem statement

Balintore village is a small, once fishery dependent, settlement on the North-East Coast of Scotland. As with countless other rural towns and villages, modernisation and industrialisation has and is changing the economic viability of these places as fishing centres. (Scotland Government, "Socio-Economic Briefing on Rural Scotland"). Katherine Brookfield summarizes succinctly the relationship; "the fishing industry is seen to be the forum through which community bonds, values, knowledge, language and traditions are established, confirmed and passed on" (Brookfield 56).

The fishing industry represented a lot more than an economy to these remote fishing villages. It was the act of fishing which "constituted community" (Williams). It defined a well-regarded harmony which spoke of local knowledge and understanding of the climatic and environmental systems which shaped the community and local livelihoods (Jentoft). Balintore has long been the home of coastal dwelling people. As early as 600AD the Picts inhabited these lands and reflected a deep seated connection to the landscape and culture (Ash 5).

The workforce in the Scottish fishing industry was about half of what it was in the 1970's (Jamieson). This demonstrates the severity of the changes which are occurring within the fisheries sector, however it does not indicate the level of changes in the smaller, rural localities. Balintore has a population of 1,039 people with only 1% of those employed in the fishing industry (Streetcheck). Since the late 1970's, when a large influx of inhabitants due to the oil rig fabrication busi-

nesses occurred, Balintore slowly crept into Scotland's index for top ten percent of most deprived places (SMID).

On this premise this thesis will address the loss of identity in Balintore and its surroundings. It will test how a new engagement to the landscape can be created and an identity fostered using the aquaculture industry as a design driver.

research question

*How can the remnants of an industry, both physical and cultural,
act as a vehicle for the revitalisation of place identity?*

Fig 1.03 Balintore Harbour, reaching to the sea
Source: <http://seaboardhistory.calicosites.com/>

thesis structure diagram

The proposition of this thesis is framed within site specific context, in terms of its ability to inform the design experimentation. Theory then provides a backbone for the experimentation and helps to provide a criteria of which to test its effectiveness in reaching the initial thesis aims.

This diagram documents the progress visually so as to orientate the reader and provide a way to pre-empt and contextualize the section which is currently being read.

Fig 1.04 Thesis structure diagram

site analysis

The site chosen for this research; Balintore, is an appropriate vehicle for experimenting in this thesis as it has a fishing industry history which has seen significant change in the face of industrialisation and also has a strong underlying landscape character and beauty which is inherent in the coastal location (Macdonald and Gordon 11). It is in this juxtaposition between strengths and weaknesses that the site analysis operates. There are distinct differences between the landscape and the current built environment, while simultaneously the landscape of the coastal margin contains a variety of under utilized and unmaintained landscape types in close proximity to regimented and maintained farmed areas. This analysis aims to identify the qualities of site which offer opportunity in conveying aspects of identity.

Inserting an industrial framework such as that of a mussel farm has a number of requirements and specifications. The coastal location and clean waters of the Moray Firth provide an opportunity to address the opportunity of aquaculture in the face of the falling levels of other fish species and nehrps in Balintore (The Fish Site). These reasons make Balintore an appropriate site for the objectives of this thesis, as they represent a common issue through the whole of Scotland (Scottish Fisheries Statistics).

Fig 1.05 Context map

Fig 1.06 Timeline of key events that shaped the place

Fig 1.07 Historic map before harbour construction 1872

Source: <http://www.nls.uk/>

Fig 1.08 Historic map showing harbour construction 1904
Source: <http://www.nls.uk/>

Fig 1.09 Site map 1:15000

An important aspect of this site selection is the fact that it does not represent a stereotypical 'romantic' Scottish fishing village. The built environment reflects an honest and harsh reality of population decline, rapid increase in the 70's and then decline again (Macdonald and Gordon 159).

Fig 1.10 Built environment
Source: <https://www.google.co.nz/maps>

Fig 1.11
Source: <https://www.google.co.nz/maps>

Fig 1.12
Source: <https://www.google.co.nz/maps>

Fig 1.13
Source: <https://www.google.co.nz/maps>

Fig 1.14
Source: <https://www.google.co.nz/maps>

The historic and cultural traditions integrated into the village and its coastal situation add to the richness of the site. "Cultural traditions, cultural identity and cultural aspirations influence how we give meaning to our environment" (Robertson 153).

Fig 1.15 Balintore Harbour

Source: <http://seaboardhistory.calicosites.com/>

Fig 1.16 Fishermen coming ashore

Source: <http://seaboardhistory.calicosites.com/>

Fig 1.17 Balintore before harbour

Source: <http://seaboardhistory.calicosites.com/>

Fig 1.18 From the harbour

Source: <http://seaboardhistory.calicosites.com/>

Fig 1.19 Street life

Source: <http://seaboardhistory.calicosites.com/>

The opportunity in this situation is that of the landscape. The same geography and character remains from what existed in the original settlement of this area. The defining qualities of this place remain, yet are denied by a community which has less requirements to respond to them as the fishing industry once did.

Fig 1.20 Cliff front beach

Fig 1.21 Rugged coastline

Fig 1.22 Tidal changes
Source: www.walkhighlands.co.uk

Fig 1.23 Expansive bay

Fig 1.24 Dune beach
Source: www.walkhighlands.co.uk

The East Coast of Scotland is a diverse environment and one that is typified around Balintore. The coastal environment is one piece of this network which sits at the threshold of the sea and the disjointed series of original landscape types inland. The high level of farming creates the disjunction and it is the coastal margin which Balintore sits that has the least intervention from other landscape uses other than habitation. Therefore within this coastal margin there is not only a strong cultural presence within the artificial environment but also the natural one.

Fig 1.25 Landscape network and examples of typical landscape types

Fig 1.26 Water margin landscape

Fig 1.27 Cliff landscape

Fig 1.28 Birch forest landscape

The coastal margin has a number of landscape types which define the character of the site. These landscape types were embedded in the culture of the fishing practice in Balintore. Duneland once provided protection to the settlements from the relentless sea. The geology of the shoreline provided hidden havens for the moored boats and fleet. The undulating raised beach landscape provided a rich ecosystem with freshwater and undulations which defined building locations and offer shelter from the often rough climate (Fig.x.). Within this coastal margin, it becomes apparent, there exists a large number of unique characteristics which define Balintore as unique location but also ones which shaped historic settlement. These features have the potential to shape the introduced industry and take reference from the once strong acknowledgment of the landscape.

Fig 1.29 Inland landscape 'experience' typified due to road and farm pattern

Fig 1.30 Coastal margin against farmland

Fig 1.31 Landscape types within the margin

Fig 1.32 Potential to create a landscape experience

main landscape types

Fig 1.33 Tidal haven

Fig 1.34 Raised beach

Fig 1.36 Dune land

Fig 1.35 Tidal zone

topographic and geographic character

This site analysis addresses what qualities of the landscape exist within Balintore. However it seeks to find how these qualities can influence the aquacultural insertion and how they can begin to integrate with its formation to revitalise an identity which is based upon landscape connection and affinity (Robertson 153).

Typical section of microclimate from on and offshore winds

Fig 1.37 Settlement driven by geography and unique opportunity

Fig 1.38 Geographic gateway and low point along coastline

Fig 1.39 Local historical destinations reached from Balintore

Local sites and context

1. Fearn Abbey
2. Shandwick standing stone
3. Balintore Harbour
4. Hilton Bay
5. Hilton standing stone

Corresponding view points of local environment

1. Balintore from Northern coastline
2. Looking north from Hilton
3. View towards Rockfield from Hilton
4. Harbour point towards Morayshire
5. Harbout interior looking East
6. Looking Towards Nigg Hill from Balintore
7. Looking East from Shandwick
8. Coastal view of enclosing cliffs
9. Shandwick standing stone
10. Balintore from Shandwick

Landscape Theme

1. Climatical shelter
2. Tidal haven
3. Tidal exposed
4. Tidal exposed
5. Tidal Shelter
6. Topography beneath
7. Climatical shelter
8. Topography edge
9. Topography edge
10. Climatical shelter

Fig 1.40 Geographic features of the site

Fig 1.41 Geographic features of the site

Fig 1.42

Raised Beach Microclimate

1. Below the 10m contour a sheltered and raised fertile strip of land defining settlement

Fig 1.43

Natural Havens

1. Hilton Bay
2. Hilton Harboour
3. Balintore Front
4. Balintore Harbour

Fig 1.44

Shore line

1. Exposed sub tidal rock
2. White sand beach at low tide

Fig 1.45
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1. Freshwater stream from inland water shed
2. Natural springs and wells in water table

Fig 1.46
Topography and Ridgeline

1. Ridgeline defining threshold of inland and coast

Fig 1.47
Tidal Range: 3m

1. Mean spring high tide range
- 2 Mean spring low tide range

Fig 1.48 Typical wave directions and wind
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1. North West prominent wind direction sheltered by ridge
2. Onshore wave direction vectors

Fig 1.49 Past stormwater outlets and present day sewage plant indicating clean water

Pollution Risk

1. Previous stormwater outlets
2. Current day sewage works

Occupational Analysis

A Deep water edge

A Safe mooring point

A Sheltered harbour

Fig 1.50 Occupational analysis

Marine Destinations:

Reasons why individuals move towards the coast. In relation to approaching the sea. With intent to approach the water for recreational or industrial use.

A Private land

A Modern sculpture

A Local features

Fig 1.51 Occupational analysis

Coast Destinations:

Destinations exist as a way to draw people from the interior of the settlement towards the coast in a method which denies the parallel structure of movement along the coast.

Pathway is influenced purely by landscape features. Allows a seclusion and immersion in qualities of site.

The framing of the view creates a strong obligation of direction and movement.

Direction of the path instigates a sense of anticipation towards destination. Creates a threshold.

Methods of movement: Physically HOW

Moving within the settlement requires a range of directions and orientations. It is in the moving from town to sea front that certain exposures of the landscape are created.

Fig 1.52 Occupational analysis

Fig 1.53 Marine destination: creating movement across threshold of land and sea
1:200

Fig 1.54 Coast destination: creates a separated experience of landscape form
1:200

Fig 1.55 Methods: creates distinct experience in the movement through the parallel structure of the site
1:200

interdisciplinary context:

place and identity

place identity

The proposition of this thesis responds to the issue of identity loss. The relation of identity to forming place can be defined by theorists such as Massey, Ingold and Mumford. However, what is the basic understanding of place? Understanding the definition allows the formation of a more in depth and spatially relevant discussion of the concept which forms the theoretical backbone to this research.

The contemporary discourse of identity and place has seen so much development and evolution from a range of disciplines that it becomes difficult to grasp the concept in a spatial context. Within this review the concepts of identity, place, place making and Critical Regionalism shall be discussed. To address the issue of which my research is centred on; the revitalisation of identity, one must first understand what identity is. As a designer, working in a spatial medium, these theories require a link which allows the application to architecture. Therefore Critical Regionalism shall be discussed as a potential method to begin to address the nature of the issue of identity loss.

The fundamental issue in which I am addressing is that of identity loss. As a basis for the remediation of such an issue, it was essential to understand what identity is and how it can be manipulated or adapted in a spatial context. This issue is first viewed from the perspective of a Human Geographer. This method of interdisciplinary definition helps to provide a core understanding that is not influenced by iterations of place application in an architectural context. Doreen Massey

and Tim Ingold discuss the importance of identity and its position in a world that is becoming globalized. Massey states; ““A ‘sense of place’, of rootedness, can provide- in this form and on this interpretation- stability and a source of unproblematic identity” (“Geographies of responsibility “4). Simplified Massey states that recognising a place leads to having an identity. Therefore the important topic of place-making is introduced. Identity and place are integral to one another and Massey begins to further explain the way in which identity is constructed in a social context. “In this interpretation, what gives a place its specificity is not some long internalized history but the fact that it is constructed out of a particular constellation of social relations, meeting and weaving together at a particular locus” (“Geographies of responsibility“7). This introduction to identity reveals the complexity of the topic. The way that identity is associated to the notion of a place.

Identity therefore has an undeniable link to place. This chapter now suggests that in creating an identity the notion of place must be understood. The development of place-making allows a transition from theory to the design realm and provides cues which will inform the design experiments in addressing the issue of identity loss. Space, as defined by Relph is more than void or plane, it is a range of experiences which inform the body of a range of stimuli. Whether they are intangible, immediate or pragmatic, these range of experiences define space. Within his theory of human connection to space, the quality of place is its power to focus and change these experiences in a spatial context (Relph 140).

Places are “significant centres of our immediate experiences of the world (Relph 141). Therefore, the theory of place by Relph suggests the structure of place is a distinction within space but one that is shaped by the experience and interaction with the spatial medium. Such a description helps this chapter define what place is, but also how it could start relating to place making. In addition to this specific definition Massey, again, aids the understanding of the tightly woven theories of place and identity. She makes a point that place is not a single formulated recipe or structure which can be found or implemented. However, it is in fact a combination of relations, interactions and negotiations (Hague and Jenkins 12). Summarized succinctly; “Perhaps this should be said also about places, that places are processes, too” (“Geographies of responsibility “8). In conclusion, it becomes apparent that place is formed through an ever changing experience between ones spatial surroundings and the way in which it informs a person’s experience between two such parts of space. By understanding what has to be achieved in relation to creating identity, this chapter progresses to the concept of place-making. The way in which place and identity can start to be created. The design focus of this thesis now starts to become a more achievable outcome in relation to the issue of identity loss.

Place-making is a process which is structured by the personal and cultural interactions with a physical place. Tim Ingold analyses, in a reduced method, through the analysis of the writings of Martin Heidegger the way that these interactions start to engage with the spatial realm and inform the creation

Fig 2.01 Salmon fishing in Balintore
Source: <http://seaboardhistory.calicosites.com/>

of place (Heidegger 38). Ingold writes that identity of place is a relationship based experienced. An engagement with an object defines an experience therefore providing an identity to said object. "In lying down with the mound, in adding a stone we have picked up along the way to a cairn, in turning the handle of the door and hunching our shoulders to enter through the wooden frame, we experience mound, cairn and cottage as things" (87).

From Ingold, a basic sense of place-making can be derived. It is more than a close proximity to an object or setting, but an engagement, be it visual or physical that defines an experience which relates oneself to the thing. It is within this relationship and engagement which identity and therefore place can be derived. Massey can further aid the explanation of place-making. From a perspective that is less physical based. She speaks of the importance of "negotiating" and "interactions" in forming a place (Massey). This stance brings a social dimension alongside the physical one. "...what gives a place its specificity is not some long internalized history but the face that it is constructed out of a particular constellation of social relations, meeting and weaving together at a particular locus" (Massey). The way in which personal relations effect place is important when considering the revitalisation of an identity, where one must remember that human engagements are just as important as relating to a physical place.

It becomes difficult to place these concepts of identity in an architectural context. Identity surely addresses social and

cultural dimensions yet the proposition of this research requires a method in which to apply these concepts into the spatial realm. The theory of Critical Regionalism is one which makes a direct relation to a local identity and an architectural expression of this identity leading to the formation of place. In opposition to postmodernism, Tzonis describes Critical Regionalism as; "the approach to design giving priority to the identity of the particular rather than to universal dogmas" (Lefaivre and Tzonis 10). From Regionalism's contemporary conception, the theory was adopted; "as a bottom up approach to design, that recognizes the value of the identity of a physical social and cultural situation, rather than mindlessly imposing narcissistic formulas from the top down" (Lefaivre and Tzonis 11). With such a definition, Critical Regionalism becomes a method which can be implemented in the realm of design but which is derived from a relation to cultural and social elements as well, thus responding to the proposition of this thesis and addressing the issue of loss of identity but in the context of architecture.

Critical Regionalism therefore becomes a tool in realising aspects of identity and place which are characteristic of a certain locality. In the discipline of landscape architecture, which is the field in which this thesis is implemented, such aspects of locality can be, but are not limited to; the geography of a site, local materials, responsiveness to specific climatic conditions, responsiveness to climatic or human patterns and appreciation of cultural values. Furthermore Critical Regionalism is a method which can reflect moments in the past us-

ing architecture as a vehicle. From its conception as a theory, Critical Regionalism has been seen as a solution or reaction to the “narcissistic formulas” as implied by Tzonis (11). This brings with it an inherent ability to be applied to a situation, and it is in this application that sees it as a formula, a method which, in the example of this thesis, allows the concept of place to be related through architectural design.

To fully understand the concept of Critical Regionalism, one must look towards the theory of Regionalism. Tzonis and Lefaivre once again provide a succinct summary in the difference between the theories. Tzonis and Lefaivre refer to the romantic regionalism as an important development in recognition of local identity as part of connecting to place. John Ruskin, art critic and philanthropist of the mid-nineteenth century stated the importance of ‘architecture as memory’. He stated that “...buildings can bring into the present the actual hour, a little of the past, they can interpose in our present” (17). Tzonis goes on to explain further that Ruskin implied that Regionalism has the ability to reflect the qualities of those who not only inhabited but constructed the architecture and the way that they manipulated materials in a particular method representative of their setting.

What Ruksin implied here is the participation in the human, rather than the ethnic community, present but also past, that can take place through the medium of the building (Lefaivre and Tzonis 17).

Fig 2.02 Embedded in the history of the site
Source: <http://seaboardhistory.calicosites.com/>

Despite this sympathy to the local identity and other regional elements, Regionalism “employed familiarization” (Lefaivre and Tzonis 143). Tzonis elaborates further stating; “It selected regional elements linked in memory and inserted them into new buildings, thus constructing sentimental scenes arousing affinity and sympathy in the viewer” (143). Therefore from the development and slow introduction of regionalist theory over centuries the concept of Critical Regionalism can be understood to what it was created to address. Lewis Mumford provides a strong definition which looks into the present day and how Regionalism could evolve into a more influential and true theory.

Critical Regionalism is a theory which pioneered some of the more original thoughts relating to the landscape. As Tzonis writes; Mumford “rejected picturesqueness, the purely aesthetic or spiritual enjoyment of landscape for it’s own sake” (Lefaivre and Tzonis 36). This was an original point in the discourse of Regionalism and was fundamental in shaping the post war approach to sustainability, ecology and identity. Mumford, in other words, defined Regional design as; “Regional forms are those which most closely meet the actual conditions of life and which fully succeed in making a people feel at home in their environment: they do not merely utilize the soil but they reflect the current conditions of culture in the region” (Lefaivre and Tzonis 37). Therefore this definition shapes Regionalism as a theory which engages with the landscape in a very particular way. It is not only limited to

the materials or method of construction but the way that it adapts to the environment, to the conditions. However most importantly Mumford’s definition relates to a way that Regionalism can become representative of culture and the relations which people have to the land and therefore the built environment. Critical Regionalism is interested in specific elements from the region, those that have acted as agents of contract and community, place defining elements, and incorporates the strangely rather than familiarly...” (Lefaivre and Tzonis 143).

The potential of Critical Regionalism as a method in addressing place through spatial representation becomes apparent. Yet further understanding of Critical Regionalism as a design approach must be pursued. Cliff Hague and Paul Jenkins explore the concept of place identity within the context of planning and elaborate upon the social and cultural dimension of identity. What follows is an emphasis that reinforces the nature of Mumford’s contemporary definition of place-making, in terms of the negotiation and constructing identities.

Elaborating from authors such as Rose and Amundsen, Hague and Jenkins state that;

The process of developing even an individual identity, while seeming to be quintessentially subjective, is one that is fundamentally social; that is to say it develops through interaction between the individual and others in society, both directly and indirectly (Hague and Jenkins 5).

It alludes to the writings of Mumford, Massey by suggesting to the concept of negotiating an identity, that is to say that it is not imposed but developed internally by a population in relation to their own structures as well as the relation to that of outside ones. What is of interest in Hague and Jenkins theories is the spatial application of place-making at a scale which is beyond that of a building. It furthers the specificity of the spatial application of Mumford beyond the thoughts of material, form and method to concepts of production and participation. In a brief summary the Amundsen suggest a list of components which form identity. They are;

- Spatial Qualities – Location, communication, infrastructure and architecture,
- Characteristics or Qualities of the inhabitants – Values or customs,
- Social conditions,
- Culture and History (Amundsen 30).

It becomes apparent, that place-making is a theory which can be approached from a range of methods. However it is through the theory of Critical Regionalism which summarizes the essence of identity most appropriate in relation to my research in the sense that it can be applied as a method and addresses specificities of unique conditions that can be translated into design. The application of this theoretical review to this thesis provides a framework of criteria and components

Fig 2.03 Practice defining identity: association of place to product, Glenmorangie Distillery
Source from: Fox, Joe. <http://fineartamerica.com>

which can test the effectiveness of my design response.

One weakness in the contemporary theory of Critical Regionalism is the lack of application to a larger scale. Tzonis explains that theoretically Mumford spoke of the “multi-functional, interdisciplinary approach to the built environment” (Lefaivre and Tzonis 39). However his application of critique was one which predominantly fell on smaller scale structures or neighbourhoods. This is why the concept of identity from Hague and Jenkins becomes so relevant. It is the understanding of the larger scale of regional identity applied through a planning focus which allows a better stance in shaping a criteria for the success of my design experimentation. It is the concept of identity at a local scale then affecting the national scale which is essential in this thesis.

The opportunities that this Theoretical Review provides for this thesis are extensive in the fact that it offers a criteria of elements which are necessary for the creation of place identity. This criteria is one that is applicable at a range of scales, benefitting from the writings of Ruskin, Mumford, Rose and Hague et al. This criteria can be described by the theory of Critical Regionalism and the development of its definition in relation to place making. Key attributes of this theory which can be implemented are;

- Identity is a process, it is something which is developed and negotiated,
- Regionalism is adapting to the landscape but in a way which

reflects the realities of the current age (non-picturesque),

- Reflects the condition of culture and history in the region,
- Regionalism is capable of being local but also engaging with the global,
- The identity is fundamentally social and develops through interaction between the individual and others,
- Based upon specific perceived characteristics of that area
- Identity requires a participation and responsibility by the inhabitants of that area.

The theoretical review of this thesis is one that addresses the concept of identity from a particular point of view, that of Critical Regionalism. It is in this method that the multiple components of place-making such as; identity, place, place making and regionalism are combined. This is then adapted to become a reflective criteria which can judge the success of my research using design as a medium.

Fig 2.04 Practices which can influence design: ice stores adapted to perform

design research

design research

revitalisation

Gateshead Revitalisation

Location: Newcastle, UK

Year: Late Nineties and early Two Thousands

This specific case study addresses revitalisation in a synoptic sense. However it is from this wider understanding that I can begin to understand how, as a method, revitalisation can be instigated in an existing urban environment and even more importantly, in a post-industrial one. Drawn from the article by Christopher Baily et al, the interest of this project is the initiative to establish a culture led revitalisation in an existing part of a city with low socio-economic status.

Being within the industrial heart of Newcastle created a significant issue to the populations of these neighbourhoods in the decline of the industrial revolution and with the closing of many of the definitive fabrication businesses. Since the mid-Eighties a longitudinal study, comparing the early two thousands, attempted to understand the influence of a council initiated public art and culture scheme to increase the public's place attachment and rootedness.

The initiative of the regeneration revolved around the concept that the cultural insertion into the area was something which on a number of levels could create participation for the people of Gateshead (Baily et al). Not only displaying well known artists and performers, these buildings became a forum for the locals of the area. Schools and community groups could become active contributors to the culture scene based in Gateshead. It was not only the participation but also the education which was seen as a success (Baily et al).

What is of greatest significance and relevance, among a program and scale of project which is not directly comparable, is the core values which determined the success. It was the creation of Participation, Responsibility and Education which Baily et al believe was the vehicle for the change in the social environment of these communities. Yet in response to this, Baily et al reiterate that it was due to the eventual acceptance and ownership by the locals of the programs which lead to the success of the revitalisation to Gateshead.

In relation to my thesis, it is the values which established the revitalisation that is of most relevance. This provides an example of how the social environment can be addresses through insertions of program if they address the right values and instil the right response in communities.

Fig 2.05 Newcastle's Millennium Bridge
Source: Welch, Adrian. www.e-architect.co.uk

Fig 2.06 View of the Baltic Art Centre
Source: www.newcastlegateshead.net

Fig 2.07 Culture being used as the vehicle for inspiring the main three values to encourage place attachment

Fig 2.08 Gateshead Sage music centre by Foster and Partners

Source: Gurak, Wojtek. www.mimoo.eu

design research

critical regionalism

Project: Leça Swimming Pools

Architect: Alvaro Siza

Location: Porto, Portugal

Year: 1966

The Swimming pools by Siza offer a fine example of a carefully integrated, place inspired design. The changing rooms and two pools are carefully planted within the natural formations of the rock on the Atlantic Coast. (Balters). It is in this integration and blurring of natural limit and architecture that best displays the success of the Leca Pools.

Interpreting the formation of the coastline Siza adapted the architectural insertion to seamlessly occupy the same niche as the naturally occurring sea pools (Balters). The understanding of the way these pools edge into the untamed ocean have resulted in the pools providing a sense of limitless connection to the Atlantic (Balters). In a similar method the appreciation of the texture and qualities of the rock creates a strong feeling of being a part of this landscape and within the environment. The way that the geometric wall abuts the rocks creates a variety of spaces which remove the user from the urban environment and focus qualities of the site.

In working with organic raises and dips in the landscape allows a completely local and specific experience to be structured. However it is the materials in particular which prove to be the greatest success. It is the treatment to the concrete path and building walls which define the success of this site specific yet unique architectural intervention. The lightness of the concrete in a direct attempt to not mimic the stones colours creates a strong suggestion to the tactile difference between the natural and built form but creating an experience of the user which transitions between being influenced

by the landscape and the architecture. This conscious decision to relate, but not mimic can be directly associated to Lewis Mumford's developing definition of Critical Regionalism; "regionalism is not a matter of using the most available local material...or construction" (Lefaivre and Tzonis 20). And as Tzonis writes; "...they do not merely utilize the soil but they reflect the current conditions of culture in the region"" (Lefaivre and Tzonis 36).

Therefore the importance of this project is a display of integration to a very natural and specific environment in a method which utilizes and embraces these characteristics while realizing a very distinct architectural form.

Fig 2.09 Interior of Siza's changing rooms
Source: Guerra, Fernando. <http://www.agemotostock.com>

Fig 2.10 Interface between rock and architecture.
Source: architecturevideo.com

Fig 2.11 Fragmentation of the architecture within site geology

Fig 2.12 Existing geology frames and defines experience

design research

place making

Project: Afangar

Artist: Richard Serra

Location: Reykjavik, Iceland

Year: 1990

Serra's Afangar follows the contour lines on a small isthmus and act as demarcations of a "temporal journey" through the landscape which is descriptive of not only the beautiful landscape but also the country's geological beginnings (McShine and Cook 96). Each basalt column is paired with another, the only difference being one metre in height between the two. Positioned so that the top of the columns are equal, each pair begins to --be descriptive of their unique place in the landscape and relate to the geography, topography and horizon. (McShine and Cook 96).

Principally the project is one that encourages a seemingly self-directed journey. One that is structured by the columns but embodied by the landscape and the environment surrounding the site. The materiality of the columns portray a large part of this experience. While the views and sights are what structure the experience of this place it is the basalt surface which connects you through the sculptures. Basalt bears timeless quality that weathers with the elements and speaks of the raw geology of the site (McShine and Cook 97). "Moving through the landscape seemed an ever evolving experience, which, like music, unfolded over time; and like dance, over both time and space" (DeFerrari). These final quotes of an article, in which a woman and her daughter experience the piece indicate the true strength of this project. Their positioning, both in terms of contextual views and also the exactness of their footings among the contours help to define the way in which the user views the landscape. It is in this formation, where they tease the view to look beyond the

present moment, to anticipate, to take in the horizon or to notice the change in topography that makes a simple series of objects an experience of identity, they begin to make this place.

As the writing of Ingold indicates the relation with the human is interactable. It defines an experience. The pure fact that you move from one set to another visible in the distance starts to define this experience and makes the columns, as a pair, a thing (Ingold 87). You make a conscious decision to target them while subconsciously moving along a single contour, moving around them to see the view, or to position yourself next to them to understand their scale and materiality. In this subconscious interaction the identity of this setting is explained and place is made.

This is not to say that these columns alone have defined an identity. They begin to define the landscape in which they sit. This project frames how interventions with a person can inform place and how landscape can start to be used as a medium.

Fig 2.13 Afangar by Richard Serra, framing the horizon
 Source: Reinartz, Dirk. <http://www.m-bochum.de>

Fig 2.14 Afangar by Richard Serra, indicating topography
 Source: Reinartz, Dirk. <http://www.m-bochum.de>

Fig 2.15 View Directions and indicators of the range of views

Fig 2.16 Range of views of the next intervention in relation to intended path

Fig 2.17 The pillars engage the attention and indirectly engage with the topographical changes of the site

framework

intent

Creating a framework of place-making which alluded to the writings of Massey, Ingold and Hague allowed a strict criteria to be formed of what constitutes identity in a spatial sense. The adaptation of Phillips' 'framework for sustainable place' (Phillips 44) allowed for the implementation of three components (Industry, Environment and Culture) which, through an experience of a product, using the medium of the landscape ultimately creates an experience of place.

The design experiments, which I undertook therefore, can be tested in effectiveness by their success in meeting these headings.

The relevance of this applied criteria is one that as an insertion acts as the catalyst towards solving the fundamental economic and social issues of the site. This aquacultural entity naturally addresses aspects of the fishing industry and therefore makes links between the original identity of the fishing settlements. This theoretical criteria has a grounding in the real issue and is one that can be seen as appropriate to my research. It is also a method which brings key elements of the fishing industry (it's social and cultural significance) back into the design solution for the site.

Phillip's framework for sustainable place

Fig 3.01 Adapted Phillips framework; Selecting three applicable components in relation to design: institutional being less influential to spatial experimentation.

industry

The first component of the adapted framework for place identity is that of industry. In my research I am testing the suitability of mussel farming in the Bouchot method as the industrial insertion that acts as the catalyst for economic revitalisation and therefore then acts as a vehicle for the design interventions.

The method of Bouchot mussel farming was chosen for many reasons, the main being the existing abundance of Blue Mussel (*Mytilus Edulis*) in the waters of the Dornoch and Cromarty Firth as proven by existing farms and commercial prospects (Scottish Shellfish Farm Production Survey 2012) (Fig.3.12). The additional benefit of reintroducing a marine production process is how it is an opportunity to establish a modern connection to the sea in the context of a world that is undergoing industrialization but with a fixation for the boutique and local product (Deloitte 1).

Bouchot mussel farming is one that has a relatively low impact upon the ecosystem, offers a significant yield in relation to investment and can be manipulated in a number of ways regarding the insertion, maintenance and harvesting methods (Goulletquer and Prou 18). A commercial bouchot pile farm is yet to be trialled on the British Isles, yet the raw ingredients are there (MacMullan and Paul 6). In relation to other mussel farming activities present in Scotland it provides an easy to manage and clean product.

The true strength of inserting an aquacultural project is not the high return, low investment or low environmental impact, it is the scalability (Simeona). Such operations can be instigated with very few numbers of piles and investments with minimal work force. It allows a gradual implementation and one that can be tried and adapted to site.

Aquaculture represents a massive economic potential in Scotland, and one gaining more and more funding and research from the government (The Highland Council “Inner Moray Firth Proposed Local Development Plan”). It is a viable and manageable economy within Scotland and most importantly one which can be applied on a local scale making the most of very specific environmental conditions.

For centuries the North Sea has provided North Europe with communication, transport, trading, food and energy opportunities. It is in these modern times with the country looking to the sea as a source of sustainable energy that presents the opportunity as re-imaging the North Sea as a supplier of sustainable product and also a way to portray a local and regional identity. Fig.3.05 indicates the potential of producing a local product in the particular conditions of each fishing settlement, and using the existing infrastructure as the means to producing a network of local product that extends beyond national borders, relaying distinct associations between a place and its produce.

Fig 3.02 Hydraulic harvesting of bouchot

Source: Prou, Jean, and Phillipe Goulletquer. *The French Mussel Industry*.

Fig 3.03 Spat collection of bouchot
Source: Prou, Jean, and Phillipe Gouletquer. *The French Mussel Industry*.

Fig 3.04 Seeded bouchot piles
Source: Prou, Jean, and Phillipe Gouletquer. *The French Mussel Industry*.

network

Fig 3.05 Local small scale ports providing their product

Fig 3.06 Regional, industrial ports providing regions product

Fig 3.07 Creating a new Nordic shared resource where the sea becomes the focus

why aquaculture?

Fig 3.08 Efficiency of producing fish

Fig 3.09 Existing success of industry

Source: "Overview of landings." Statistics. The Scottish Government

Source: "Scottish Shellfish Farm Production Survey 2012." Scottish Fisheries Statistics. The Fish Site

Fig 3.10 Value of shellfish (per tonne) in comparison to pelagic species versus the percentage of catch they represent

Fig 3.11 Scalability and low investment potential of bouchot for large returns

Source: Fisheries Development Officer, The Highland Council
Source: Bourne, Joel.K.

- 1. Mussel scalps
- 2. Approved aquaculture venture approved but not invested
- 3. Mussel scalps

Fig 3.12 Map of surrounding aquaculture enterprises

Source: Scottish Environment Protection Agency

comparison study

The first steps of the industrial solution was that of scale and appropriateness. In introducing an industry there are a number of functional needs which have to be met. Therefore to ensure a realistic and accurate application small case studies were completed on; 1. A commercial mussel farm locally, 2. A commercial modern fishing harbour which operates in the same waters as Balintore Fig.x.

The comparison of the functional needs for each of these industries defined a vocabulary of essential requirements for the mussel farm in Balintore Fig.x.

Tain Scalps

total tonnage of live catch
1,200 T

working staff
8

cargo jetty width
4.9- 6m

crane capacity
3 T

total vessels
2

covered storage
790m²

Buckie Harbour

total tonnage of live catch
2,589 T

population
8,059

cargo jetty width
4.9- 6m

crane capacity
0- 24T

total vessels
77

covered storage
1400m²

framework

Fig 3.13 Layer of design criteria

- 1 Functional
- 2 Environmental
- 3 Cultural

Fig 3.14 Bouchot layout

Piles layout with amenities such as cool stores berthing docks and loading jetties

Fig 3.15 Occupational patterns

Patterns in which people inhabit the coastal margin and move between township and sea in relation to historical patterns

Fig 3.16 Landscape features

Naturally occurring tidal havens ridge lines and microclimate define a series of nice environments

Bouchot layout

1. Spat collection beds in more sheltered but less accessible bay
2. Smallest mature mussel bouchots
3. Largest bouchot collection and most regular tidal waters
4. Further mature mussel beds, accessible and sheltered

Fig 3.17 Pure piles layout

Processing infrastructure

1. Furthest reach storage shed and mooring point
2. Onshore storage facilities and transportation point
3. Permanent mooring point and safe harbour
4. Secondary mooring point and storage shed

Fig 3.18 Landing areas, stores and jetties

Wave attenuation

1. Breakwater point one protecting from Northerly swells
2. Elongated breakwater protecting naturally formed haven
3. Breakwater continuing attenuation shadow from the harbour

Fig 3.19 Breakwaters

The mussel farm was chosen and inserted, first from a completely pragmatic and cost effective perspective. This formation suggested the scale, activities, location and detail of function which needed to be considered when adapting it is a vehicle for designing 'place' (Fig.3.21).

After defining the bare necessities of the industry the next stage was to adapt and manipulate this framework to become more reflective of the criteria defining identity. The form of the industry plan begins to reflect the uniqueness of the site and its environmental qualities. For example the bou-chot programs begin to be placed where the water is deepest and stillest to ensure protection.

Bouchot pile layout

1. Pattern defined purely by logistics and ease of access/harvest
2. Pattern shaped by naturally occurring havens, communal emphasis and geology

Fig 3.20 pragmatic layout versus site adapted piles layout

Fig 3.21 Pragmatic layout of the industrial structure 1:15000

Balintore Mussel Industry

Facility

- A** Warehouse storage and dispatch
- B** Mooring berths for harvest vessels
- C** Maintenance boat storage and workshop
- D** Storage post and landing jetty
- E** Maintenance boat storage and workshop
- F** Berths for vessels and storage post
- G** Maintenance boat storage/workshop and storage post

Activity and Programme

Bouchot Farms

- 1** Southern Bouchot Farm
- 2** Central Bouchot Farm
- 3** Northern Bouchot Farm
- 4** Spat Collection point

Bouchot maintenance
Spring, Summer and Autumn

Storage and packaging
coincides with harvest

Attaching spat stock
Spring and Summer

Harvesting bouchot
Spring, Summer and Autumn

Transport port to port
Spring, Summer and Autumn

Spat collection
All year round

Harvesting bouchot (by hand)
Spring, Summer and Autumn (certain bouchot zones only)

Transport and dispatch
Coincides with harvest

Fig 3.22 Industrial programs and activities

Fig 3.23 Inserted pragmatic plan describing features and facilities

Fig 3.24 Pragmatic layout of the industrial structure 1:15000

result

conclusion

The industrial insertion is now an aspect which pragmatically works yet is responsive to the site conditions of the landscape.

This layout is the catalyst for forming a master plan which aims at introducing an engagement with the mussel product informed through the medium of the landscape within the setting of the occupational patterns.

Fig 3.26 Statistics relating to implemented industry

Source: Goulletquer and Prou

Source: Holmyard, N.

design process

introduction

The initial experiments of this thesis tested the application of the bouchot mussel farm into the site. It was the first investigation into form and creating an experience centred on the mussel product. The method used in testing place revitalisation in Balintore was the application of an industry as a driver. This application was an implementation of a vehicle for creating an experience that could begin to reflect aspects of this place. Initially the experiments were unsuccessful in meeting the aims of the proposition as they did not meet much of the criteria of place making as cited in the theoretical context chapter. However the development through sketching, mapping and theories of place making resolved in a much better meeting of the criteria and initial proposition.

The nature of the methods which were implemented in the research were iterative. A number of successive strategies were trialled in relation to the initial aims which were; to manipulate an existing industry into a tool which can be used to not only reflect specificity of place but also reinforce elements of cultural identity and secondly, the industry will be manipulated and adapted to adjust to the cultural and social environment of the settlement in relation to creating a range of experiences to the production of the mussel.

Fig 3.27 Concept sketch

1. Structuring public movement
2. Piles applied to coastline
3. Destinations within framework

Fig 3.28 Concept sketch

Fig 3.29 Application of industry into site

- 1. Public promenade*
- 2. Adaption to existing structure*
- 3. Tidal pools for mussel growth*
- 4. Breakwater protection*

application

The first experiment dealt directly to the application of the mussel industry into the site of Balintore. It was a direct manipulation of the existing structure of the site, analysed and then adapted to allow for the requirements of the industry. The attempt at place making was approached through proximity to the industrial process and accommodating a range of everyday programs on the structure of the mussels.

The reflection of the first experiments led to the understanding that true aspects of place were not being addressed. In relation to Ingold's writing, there was no engagement with the environment to create an experience (94).

Fig 3.30 Spatial structures can define a changing experience

- 1. Experience of place made by inhabiting industry*
- 2. Destinations promote new inhabitation of site*
- 3. Proximity to product created*

Fig 3.31 Section of public space integrated into mussel farm

Fig 3.32 Section showing proximity to mussels

1. The industry is facilitated but the experience is not truly of 'place'
2. Destinations are tested but do not link to the site or program
3. Mussel growth is provided
4. Public space lacks program
5. Lacks reason to inhabit structure

designing an experience

The second iteration responded to the critique of the earlier experiments. The application of the mussel farming and the piles was used to define an experience of some of the landscape qualities of the site, as defined by mapping exercises. These qualities were selected from what defined Balintore as its own unique location.

The critique of this response was against the particularity of the interventions. The experience was one which was generic in what it conveyed of the landscape and one which engaged with programs that had no grounding in the specificity of the site. Another lacking aspect of this experiment was the way in which it interacted with the mussel farm as the two do not influence one another.

Fig 3.33 Concept sketch

1. Perception of the landscape defines an experience
2. Pathways which change with tide promote a specific experience
3. Engaging with certain characteristics only
4. Mussel growth is maintained and framed

Fig 3.34 View point destination that responds to industry in form

1. Introducing interventions of site experience
2. View lines to denote landmarks

Fig 3.35 Reciprocity of form in viewpoint structure

3. Intervention placement engaged with site, but lacked integration to industry
4. Reciprocity of scale made some connections to product, but was weak
5. Reasoning for intervention placement missed link to place making

Fig 3.36 Section indicating experiences defined by exposure to climate conditions

1. Intervention with landscape acts alongside the industry, but not integrated
2. Scale and relation of 'piles' makes links and reflecting contour lines
3. Experience of landscape is made, but lacks purpose
4. Certain aspects promote subtle characteristics of site such as framing and reflection

Fig 3.37 Concept sketch

1. Engage with specific characteristics of the site like climate
2. Relating to specific stage of mussel process
3. Create an opportunity of site experience, tidal, seasonal etc.
4. Integrate village to industry

Fig 3.38 Concept sketch

1. Emphasizing aspects of the landscape
2. Stimulating a unique experience through intervention
3. Reflect site characters in intervention

Fig 3.39 Concept sketch

typology + criteria

The final set of experiments responded to the aims of the proposition in a way which constructed an experience but was very specific in terms of addressing singular qualities of the industry, landscape and culture. This was done by centring the mussel as the catalyst for experience.

The themes which the designs portray in relation to the adapted framework by Phillips are slightly convoluted and a distinction of each landscape quality and their influence to the farm was not obvious. It is at this point where the adaptation of typology as a method helped to focus a response for each of the interventions which was conceptually independent and combined three aspects leading to place making.

A

Shelter

Tidal Haven

Fig 3.40 Typology one

B

Integration

Raised Beach

Fig 3.41 Typology Two

C

Temporality

Littoral Zone

Fig 3.42 Typology three

D

Curation

Duneland

Fig 3.43 Typology four

Fig 3.44 Subtle reflection of landscape through intervention

- 1. Framing of industry associated to landscape experience*
- 2. Simple interventions express shelter or exposure*

Fig 3.45 Submergence in landscape; removal from the wind and rain

Fig 3.46 Industrial requirement of shelter required for:

Fig 3.47 Model photos testing typological forms and scales

Fig 3.48 Public promenade space reflects tidal character

1. Industry is maintained and allows proximity to public
2. Defining quality of space overlaps with public space
3. Space lacks connection to industry, environment AND culture

Fig 3.49 Incorporation of market place with proximity to mussels, but no landscape experience

Fig 3.50 Industrial requirements at this site

Fig 3.51 Duneland landscape shaped by retaining elements

1. Space engages with landscape character but lacks unique experience
2. Provides an environmental amenity, needs to strengthen the industry

Fig 3.52 Curating the public within industrial spaces

Storage and packaging

Transport and dispatch

Harvesting bouchot (by hand)

Transport port to port

Harvesting bouchot

Fig 3.53 Industrial requirements of this site

final design

Fig 3.01 Masterplan of each site and function 1:15000

- 1 Phase One: Site B
Self reliant farm activity with low environmental and visual impact.
- 2 Phase Two: Site A
Integral part of farming process becomes on site and reduces import cost of spat, creating up size potential.
- 3 Phase Three: Site C
Large amounts of piles and maintenance, berthing options as well as amenity to the village.
- 4 Phase Four: Site D
More piles and a storage and dispatch availability which makes whole operation centralized.

Fig 3.02 Phasing plan contrary to order of sites as explained but as which would be implemented first 1:15000

Fig 3.03 Four sites that encompass the complete cycle of the mussel production and defining landscape types

A

Tidal Haven

Seeding

B

Raised Beach

Harvesting

C

Littoral Zone

Consumption

D

Duneland

Dispatch

site A

Site A is located at the North of the site in Hilton Bay. Physically it sits on the edge of the settlement and acts as a gateway to the many day walkers that frequent the footpaths.

Fig 3.04 conceptual material palette

characteristic

The landscape characteristic which defines the industrial function as well as the nature of experience is that of the tidal haven. The bay offers shelter between the two points of rocks and the grassland beyond the high-water mark has an undulating terrain of exposed ridges and sheltered dips. This is indicated clearly by ancient settlements of pre-Christian 'picts' beyond the intervention (Fig 4.08).

Fig 3.05 Planting palette

1. *Pinus sylvestris*
2. *Betula pendula*
3. *Calluna caledonia*
4. *Eriophorum angustifolium*
5. *Ammophila arenaria*

Fig 3.06 Site A: Grassland beyond beach and town

Fig 3.07 Remains of early Christian chapel showing mounded shelter

Fig 3.08 Path leading through site a and north

industrial function

The industrial activity that is located here is the seeding of the spat on to the bouchot ropes. Due to the high density of mussels in this area the seeding will occur on site, however at the furthest extent of the industrial layout.

It acts as the beginning of the industrial process and the origins of the mussel in the environmental context. This location is justified due to the situation of the natural haven formed by Hilton Bay. The ropes have a strict need for stiller and deeper water which is met by the geographic location here despite its distance from the main town centre. Slightly removed from the urban context the more fragile process of seeding can occur without major tidal and human disruption. As well as the seeding there are certain levels of maintenance that have to be upheld as well as the removal of the seeded ropes in the months of spring and summer.

Fig 3.09 Industrial functions

This intervention offers physical shelter from the elements using a retaining wall typology which provokes an aspect of reflection of the raw environment while symbolising the act of submerging within the embrace of the community. Drawing connotations to the spat seeding location and the contrast between coastal exposure and shelter, the space provides a physical shelter from climatic conditions which emphasizes the raw nature of the landscape.

The typology submerges the user within the ground plane emphasizing the relationship to the sky, the rain the wind and the threshold between land and sea. Such symbolism relates to the early settlement of the area, and the hostility of the environment in which the people had to seek shelter. The simple and framing experience makes evident the subtlety of elevation change in the landscape. Culturally, the location of this site inhabits the junction of the network of coastal paths which follow the coastline, which has always marked the entry of the village from the North, as well as into the lowlands of Ross-Shire (Fig 1.31). It emphasizes the importance of a threshold between the hinterland and the coastal margin which formed the settlements.

The retaining wall structures aim to refract and divert the flow of pedestrians to frame the desired experience of shelter within the landscape. The fragmented form is one that has similarities with the rock forms present along the whole stretch of the coast.

The principal element is that of the retaining walls and the 'submerged' spaces. By encouraging a submergence, almost

an enclosing feeling, it allows the qualities of the landscape to be framed and emphasized within the consciousness of the pedestrian. Similar to the Iqualada Cemetery the simple material palette and the framing of the contextual horizons or skies promote qualities of serenity and reflection (Kroll). Where the walls move together and the ground plane flattens, seating elements and planting are used to provide spaces which invite passers-by to sit and dwell. The tree planting not only breaks up this space but brings an aspect of fluidity and diversity to the submerged spaces. Their presence further emphasizes the difference between the exposed ground above, as their canopies are effected by the wind, while contrasting with the stillness within the walled structure.

To further draw a connection between the sheltered interior and the exposed, water channels are cut into the ground plane which lets rain water flow from behind the retaining walls through the interior spaces to a collective channel at the base of the lowest walls.

Site A provides three typologies producing this experience which aims to contextualize the beginning of mussel growth. The first is that of the submerged retaining walls. The second provides a method for progressing into the settlement from this border, using the same retaining wall typology to structure moments of exposure to the elements along the coastal edge framing the bouchot seeding in its marine surrounds. The final typology is an element, which has connotations to the retaining wall and through a symbolism, brings a transition of this typology into the town itself.

Site Plan

1. *Existing paths*
2. *Interior space with seating*
3. *Existing raised beach landscape*
4. *Hightide line*
5. *Landing area for piles maintenance*
6. *Seeding piles for bouchot*
7. *Exposed path experience*
8. *Dwelling space with seating*
9. *View platform defining edge of shelter*

Fig 3.10 - Site plan 1:1000

Overview

1. *Exposed View platform*
2. *Landing area for maintenance*
3. *Seeding piles*
4. *Retaining walls*
5. *Interior sheltered space*

Fig 3.11 Site Axonometric informs spatial relation in context

Fig 3.12 Section A-A: Interior spaces designate reflective pause 1:200

1. Retaining walls
2. Plant beds
3. Water channels
4. Seating elements mirroring the retaining wall
5. Sloped entry

Fig 3.13 Section B-B: Highlighting the exposure contrast 1:200

1. Retaining walls
2. Seating
3. Lighting elements
4. Support piles angled inward
5. Spat seeding

Fig 3.14 View of the interventions in approach. The form of the retaining walls are structured between the undulating ground and draw walkers inside.

Fig 3.15 The interior of the intervention slopes away to the water's edge and the spatial composition becomes obvious.

Fig 3.16 Shelter from the elements within the space and highlighted by ground drain channels

Fig 3.17 Space leads onto framing mussel space and exposing elements

Fig 3.18 Street space is informed by similar typology as wall structures

Fig 3.19 Drain and Wall typology linking to intervention 1:100

- 1. Seating element with connotations to retaining walls*
- 2. Drainage channel style continues into street environment*
- 3. Plant species match those of the intervention*

site B

The second site moves south along the coast, adjacent to the existing harbour wall of Hilton. The raised beach landscape now accommodates a number of houses with small pockets of private, domestic land which tend to compromise the public exposure to this part of the site.

Fig 3.20 Conceptual material palette

characteristic

The landscape characteristic of this site is raised beach. The landscape type which typifies the majority of the coastline in this area, yet one which is denied an existence due to the settlement of Balintore and the other seaboard villages. Between the cliffs and the high tide mark, it is this landscape which the original settlers of the area would have made their home.

The stretch of coast of this site has a number of properties on it and most have small garden plots which extend into the previously public front of the water's edge. It is along this public front where a number of the original social and communal values were fostered while fishing related activities were undertaken (Gordon and Macdonald 51). The denial of this public amenity as well as the landscape type make this space one of great importance.

Fig 3.23 Plant palette

1. *Betula pendula*
2. *Papaver rhoeas*
3. *Dactylorhiza fuchsii*
4. *Cichorium intybus*
5. *Cytisus scoparius*

Fig 3.21 Existing raised beach

Fig 3.22 Nature of the domestic garden space

industrial function

Operationally this site acts as a harvesting centre for the bouchot mussels. With a large number of piles due to the littoral zone, an existing berth for boats and landing ramp therefore providing all the elements to allow it to operate on its own, with the exception of cool stores and dispatch. In relation to the masterplan, this site acts as an intervention for the locals, a functional section of the farm which is integrated and hidden into the landscape.

The significance of this site is a space which is for the locals in function and design, it provides an initial step in the implementation of a whole site industry and one that shows best a seamless adaptation with the landscape.

Storage and packaging

Bouchot maintenance

Harvesting bouchot

Harvesting bouchot (by hand)

The operation of the industry is integrated into the renewal of the raised beach which enforces the existing landscape type while having a distinction between functional and public spaces. The design intervention of site B aims to integrate this functional component of the industrial insertion into the public realm, effectively removing the presence of the active farm interface from the public and private front. This is implemented by using terraces to reinforce the concept of the raised beach, helping to remove the industrial terrace from view while providing a more effective public and private balance of land. Ultimately this leaves those walking on the pavement and in the houses with clear views towards the sea, framed by the landscape type which was originally present before the growing urban environment.

The terraces also help to create a hierarchy of movement options. The slopes of the grassed areas structure smaller, more habitable spaces for dwelling. The main structuring elements are those of the concrete terraces, helping to create a coherency in site wide materials, and secondly areas of perennial plants which are left un-mowed. This pattern helps to define smaller more domestic spaces within the larger public front. Therefore providing the amenity of the space to the whole community but while also making connotations to the residential nature of the space. The un-programmed nature is one that fits within the re-introduction of the raised beach landscape. Spaces within the planting and the terraces become picnic spots, play spaces or dog walking zones.

Simultaneously the functional terrace below the raised beach operates as any other farm. Those who begin to enquire and actively examine the interface of the industry will observe an industrial activity in close proximity. The threshold between public space and functional terrace is emphasized with a ramped, retaining wall entry, defining this transition.

Site Plan

1. Existing sheds
2. Public promenade
3. Central public space shaped by perennial planting
4. Lowered working terrace
5. Existing street
6. Domestic scale open space
7. Bouchot piles
8. Landing platform

Existing tree

New planting

Fig 3.24 Site plan 1:1000

Overview

1. *Existing sheds*
2. *Domestic planted areas within public space*
3. *Working terraces*
4. *Existing street front*
5. *Seeded grass creating space separation*
6. *Public promenade on lower terrace*
7. *Bouchot piles*

Fig 3.25 Site Axonometric informs spatial relation in context

Fig 3.26 Space separation

1. Public and domestic space
2. Working terrace

Fig 3.27 Domestic spaces defined by seeded and mown grass types

1. Domestic scale space defined by perennial planting
2. Structures movement within terraces

Fig 3.28 Section A-A: Industrial integration yet also separated 1:200

1. Street front
2. Initial 'domestic' terrace
3. Perennial planting breaking up space
4. Lower ground plane removed from street view
5. Threshold to working terrace
6. Retaining structure
7. Working space
8. Bouchot piles

Fig 3.29 Looking from the street to sea

Fig 3.30 Within the terraces

Fig 3.31 Threshold between domestic and work

Fig 3.32 The working terrace

site C

Site C has a stronger urban quality due to proximity of the existing built environment and as it also establishes itself as a new communal focus. This is implemented through a significant public space that incorporates the exchange and consumption of mussels. Interchangeable 'componentry' creates an informative interface with the tides, seasons and climate which adapts as the conditions and users of the space change.

Fig 3.33 Conceptual material palette

characteristic

The landscape type dominant at this stretch of coast is the expansive littoral zone and tidal difference. Inhabiting the threshold with the horizon which the settlement looks out to. In this regard the site also acts as a way to engage with the defining tides and climate of this coastal environment. However this site also occupies a large portion of public land which was once frequented by the day to day life of the fishing families. (Gordon and Macdonald 51).

Fig 3.34 Current public space is in denial to sea front and patterns

industrial function

Site C acts as the largest number of harvesting bouchot piles. Due to the expansive littoral zone at this part of the site. More significantly it also acts as a multi-functional market 'square' which can be adapted by componentry which, depending on the user, allows the space to be a market square, a place to sit and eat, a work surface, net drying space or a boat store. The inlets which structure the water's edge allow boats in the winter months to be dry docked on shore as well as berthing opportunities.

On a more informative, as opposed to strictly functional level, the space acts as a navigation point which in the often present darkness acts as a beacon to the safety of the harbour and berths.

This site provides a renewed communal focus which centres on the exchange of the mussel while conveyed by a number of interactable components which reflect the coastal patterns of seasonal and tidal changes. The intent of this design is to provide a new communal space which honours the traditional and historic amenity of public frontage in fishing villages but which does not deny the contemporary and forward moving introduced mussel industry. It is the 'componentry' which speaks of this modern change and providing, once again, a way to engage with the landscape.

The principal program of this site is that of the market 'square', plazas provide the basis for a range of multiple uses and programs from seasonal produce markets to fishing tasks and maintenance. The space is designed so as to allow an engagement with the natural patterns and cycles of time such as the tides, seasonal changes and climate, therefore providing a different quality of space for different user groups depending on the time the space is inhabited. An example of this is how the 'componentry' can be used to provide the braces for dry docking the fishing boats in winter, but in summer the same space and 'componentry' can be used to set up a market space, with benches seating and awnings. Again, more 'componentry' can be applied to the space to provide net drying racks and lighting for work at dawn and dusk.

Essentially it is a working space, yet also one that centres on the exchange and consumption of the mussel and has an ambiguity and interchangeability of space which adapts as the users so wish, be it worker, stall-holder, visitor or fisherman.

The wharf structure which runs out towards the sea acts as a berth and dispatch for sea traffic but also a lighting element that aligns with the shore to provide navigational reference to fishermen. The wharf structure runs onshore and into the kiosk, which serves as the point of distribution for mussel products on site and also into a light tower, which provides a landmark within the space which translates to navigational reference point at night.

The whole public space is structured by a wall element which continues from the light tower and also provides an interface with the climate's conditions. This timber, interactable structure is completely changeable at points, it provides a point of orientation in the space and is one that at a range of times offers a different engagement with the public space. Depending on the user the timber form can open up to enlarge a space, provide permeability, create a work surface, seating, shelter and frame views. It is with features of this strategy that make this space an informative tool for the fishermen while also a practical 'component' in enlarging spaces, making work surfaces and seating.

The intent of the space is providing an amenity to a wide range of users. The ground plane provides pop up lighting, seating, market spaces or dry docks with relative ease. In any situation the space can adapt to the climate, season or time of day creating a series of smaller 'spaces' within a communal realm. It is the relation between the people and the environment which shapes the consumption of the mussel and therefore frames it within defining qualities of place.

Site Plan

1. Urban park space
2. Boat and maintenance store
3. Winter boat dock
4. Market space with component slots
5. Winter boat dock
6. Kiosk and light tower
7. Jetty
8. Inlet
9. Maintenance platforms
10. Jetty end and loading area

Fig 3.35 Site Plan scale 1:2000

Site Plan

- 1. Walled edge and promenade*
- 2. Entry and dwelling zone*
- 3. Component market space*
- 4. Light tower and net drying*
- 5. Walled raised 'work space'*
- 6. Plant revegetation*
- 7. Winter dry dock component*
- 8. Work space with pull up lighting*
- 9. Inlets*

Fig 3.36 Site Plan Scale 1:1000

Overview

1. *Plant regeneration*
2. *Walled promenade*
3. *'Component' spaces*
4. *Boat berths*
5. *Net drying*
6. *Light tower and kiosk*
7. *Jetty*

Fig 3.37 Site Axonometric informs spatial relation in context

Fig 3.38 Winter dry dock components

Fig 3.39 Summer market space components

Fig 3.40 Net drying and light poles components

Fig 3.41 Structure indicating wind directions

Fig 3.42 Interactable light up areas

Fig 3.43 Wind oriented promenade section

Fig 3.44 Section of lift up lights

Fig 3.45 Navigation map defined by lights 1:15000

Fig 3.46 Navigation map defined by lights 1:3000

Fig 3.47 Section A-A showing net drying space and boat berth 1:300

1. Tide measure marks
2. Navigational light
3. Inlet
4. Light poles leading to water's edge
5. Market space with net drying
6. Light and net drying components
7. Wall promenade
8. Vegetation regeneration

Fig 3.48 Section B-B: Market space bounded by promenade walls 1:300

1. Vegetation regeneration
2. Wall promenade and market edge
3. Market space
4. Market componentry
5. Bouchot piles

Fig 3.49 Wall section 'entry' 1:200

- 1. Seating
- 2. Net drying space beyond entry

Fig 4.50 Wall section 'opening' 1:200

- 1. Dwelling space exposed with wall
- 2. Light up features provide work space

Fig 4.51 Wall Section 'entry' 1:200

- 1. Habitable space
- 2. Light up feature providing a range of uses
- 3. Seating facing market

Fig 3.52 Section C-C through interior public space and water's edge space 1:500

1. Street edge to park space
2. Interior planting and seating
3. Ross Crescent
4. Coastal planting edge
5. Wall promenade
6. Public front

Fig 3.53 Section D-D through jetty 1:500

- 1. Seating and work bench with lighting*
- 2. Boat traffic passage*
- 3. Jetty end for loading*

Fig 3.54 Section E-E Light tower and market interface 1:200

1. Market space
2. Interface with mussel kiosk
3. Light tower and platform
4. Jetty end evolving into kiosk

Fig 3.55 Viewing the dry docked boats within the space

Fig 3.56 Fishermen using net drying componentry

Fig 3.57 Visitors exploring the space and using market area

Fig 3.58 Seasonal markets using componentry

site D

The final site location is in a landscape which has been underutilized and is now threatened by development. This intervention aims to utilize this neglected space while reinstating the visual amenity of the duneland landscape to the village.

Fig 3.59 Conceptual material palette

characteristic

The landscape which defines site D is duneland. The sand dunes around Balintore are increasingly reduced and removed for development and property gain (Fig.3.60). The beach of Shandwick used to be sheltered by grassed dunes which provided shelter and resilience against the winter storms, however with the reduction of the duneland the need for sea walls and reinforcement has been increased.

Fig 3.60 Dune system completely removed or contained by human influence

Fig 3.61 Remnants of duneland in other areas of Balintore

industrial function

The function of site D is the link which connects the mussel farming in Balintore to the regional scale. The interventions encompass the warehouse and store structures that are required in the bagging of the product and holding between dispatch to cleaning and packaging centres in other larger ports. The ability to have enough of a centralised store capability is to ensure that product can be dispatched without compromising quality and allowing the mussels to be farmed and landed all on site (Prou and Goulletquer 19).

design response

The operational centre of the product's dispatch curates the movement of the public using the landscape typology as the medium. The intent of the design is to minimize the visual impact of the storage facilities while allowing a revival of the defining landscape type. The method for this reintroduction of duneland is by using the industry as the driver. The cool stores which are set into the ground to lower air temperature use their walls to form a new dune environment.

The intervention responds to the industrial needs of the mussel production as well as the environmental and cultural components of the site. A curation is facilitated by the site as it directs public space within an operational area, defining an experience of the mussel. A recognition of the how the processing reaches this point can be formed, one which places the food product within the context of its origins and growth.

The cool stores begin to act as the transition which links the landscape, industry and qualities of the Scottish culture. The forms of the design create an experience which engages with the visual amenity of the duneland while making them 'functional' in respect to the growth of the village's economy. The presence of the retaining structures have strong connotations to the ice stores of Scotland. Small dwelling spaces between the dunes and the cool store structures allude to the Stone Age habitations of Scotland's history which used the landscape as a tool to retreat from the extreme weather conditions or to provide constant temperatures for food storage. The structures allow a contemporary association to

these trends of the past, it speaks of a recognition of the past and the responsiveness to the environment but with a contemporary and industry driven driver.

Environmentally the intervention addresses the re-creation of the dune landscape into something which is of the place but adapted and manipulated to reflect the modern use of the site in its industrial context. The dunes are used as a medium to provides resilience to the coastline and allow a revitalisation of the original landscape.

Site Plan

1. Dune enforced walkway along side properties
 2. Pause spaces within the dune environment
 3. Maintenance terrace for bouchot
 4. Sub-dune boat store
 5. Main yard for transport dispatch
 6. Sub-dune cool store
 7. Pause space with pathways
 8. Sub-dune cool store
- — Property Boundary

Fig 3.62 Site Plan Scale 1:1000

Overview

- 1. Entry towards harbour*
- 2. Private homes divided by dune growth*
- 3. Lower terrace*
- 4. Bouchot piles*
- 5. Boat ramp*
- 6. Harbour*
- 7. Sub-dune cool stores*

Fig 3.63 Site Axonometric informs spatial relation in context

Fig 3.64 Detail Plan Scale 1:1000

1. Sub-dune cool store structures beneath the surface retaining walls

Fig 3.65 Paving Detail Plan becoming more fragmented towards the edges of the spaces and dunes

Fig 3.66 Existing project using wide gap paving
Source:

Fig 3.67 Section A-A 1:200

1. Private boundary
2. Regenerated dune
3. Retaining wall creating path and dune
4. Pause spaces within pathway

Fig 3.68 Section B-B 1:200

1. Regenerated dune
2. Pause space within working environment
3. Cool store space
4. Skylight structure
5. Dune forming walls
6. Path and seating within dunes

Fig 3.69 Formation of the dunes around structuring of spaces

Fig 4.70 Local Ice houses used to store product

Fig 3.71 Leading into the dune environment

Fig 3.72 Entering from the industrial zone into dunes

Fig 3.73 The dwelling spaces within the dunes

Fig 3.74 Proximity to the bouchot and working

discussion, limitations and conclusion

conclusion

The decline of the fishing industry in coastal settlements of Scotland has dramatically effected the livelihood of the Scottish population (Scottish Government, “Socio-Economic Briefing on Rural Scotland”). Associated with this industry decrease is the identity which once defined these places (Jamieson 4).

Applying some of the key components of the theory to a specific and realistic scenario such as that of Balintore allowed a successful test of its effectiveness. In the application of theory it is apparent that qualities of place, as defined by Hague & Jenkins, Massey, Ingold and Mumford can be experienced. Such an application involved portraying place specific landscape types and cultural traditions. Additionally it became clear that the practice of an industry, which associates to cultural traditions and unique characteristics of site, can be used as a catalyst and driver to enable place identity.

The three key principles of this research (revitalisation, Critical Regionalism and place making) showed realised examples of the theory being applied. The Gateshead revitalisation showed that despite the scale differences in projects the success of the work was to instil a sense of responsibility, participation and education in the public. That is to instil an inclusive nature in the program of the interventions. The Leca pools, Portugal explored the way that the landscape or character of a site can be employed to define experience of the site’s character and setting.

The final investigation explored how place can be made through creating an experience of the environment, using the intervention as a provocateur. Serra’s Afangar portrayed a powerful story of the Icelandic landscape using a very simple medium to convey the message. It is this ability to create place through making an interactive experience that summarizes the intent of this thesis.

It is apparent this thesis meets its proposition to investigate identity revitalisation through the medium of product experience. However it not only refers to the past to create this identity, but also the application of contemporary theory it initiates engagement with other formative characteristics such as the landscape types, cultural traditions and a sustainable aquacultural future. A success of the method used is the applicability to similar situations and sites within, not only Nordic Europe, but also the world. Smaller settlements which once relied on a small scale coastal industry can use the applied framework of; Functional, Environmental and Cultural to define a connection to place.

Landscape Architecture offers a perspective to the problem faced by Balintore. The discipline engages with each of these realms and can look to use the landscape, and man’s connection to it, as a way to provoke a tangible place attachment through an experience of its defining characteristics. The design solution allowed the testing of the industrial insertion in an iterative way which could address the issues related to

place making. The scalability of the industry chosen allowed a manipulation and adaptation which shaped a very site specific and potentially feasible outcome.

Each developed design tests how industry can be scaled and applied to the existing conditions, enabling an experience facilitated by the landscape, of the three defining components of place. Site A contextualizes the beginning of the industry and associates the spat seeding with an experience of shelter and exposure, emphasizing reflection of the elements and establishing the environment in a sense which makes connotations to early settlement. Site B allows an integration of the industry into the 'raised beach' and allows an opportunity to provide a combination of public and private scaled spaces to engage with the once present landscape and provide for the locals who inhabit the site every day. Site C operates as a communal space which makes connotations to the public spirit of the fishing industry. It acts as the interface between the product and the people, providing a market square which also has an ambiguity that allows adaptation to the landscape and defining qualities of Balintore. Finally, Site D utilizes a neglected piece of land which not only fosters landscape resilience but provides a medium in which the industry can function. This space makes connotations to the history of the site and curates an experience with tension between industry and landscape.

Limitations of the research involved the denial of using tourism as a potential driver, while purely focusing on the indus-

trial insertion. Naturally this would incur that the research becomes not only about place identity but also about the way in which architecture can cater for the needs of those who pass through a location. However, to narrow the scope of the project to ensure the aims were met without digression this angle was not approached. Furthermore Bhandari states that; "But the image of Scotland remained largely the same, resting heavily on traditional images – emphasising tradition and tartantry, sentimentality and romanticism." (Bhandri 49). It can be said that in seeking true identity, that tourism could have been counterproductive to the aims established at the outlook.

This thesis challenges the modern trends of place association. Throughout Scotland the strength of the landscape defining identity is being diminished (Bhandri 49). For centuries it has been the physical environment which transcends generations and language differences in portraying stories and accounts of the people who inhabit them (Robertson 153). "Collective memories usually contain a strong spatial dimension and are linked to certain places in the landscape" (Robertson 155). The research provides a framework in which a future can be secured in an economic sense, but also a cultural one. One which reinstates the defining qualities of the region helping to define the nation and the people who inhabit it.

Fig 4.01 *Instilling reflection of the elements*

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- Fig 2.01 Salmon fishing in Balintore. Sourced from: <http://seaboardhistory.calicosites.com>
- Fig 2.02 Embedded in the history of the site. Sourced from: <http://seaboardhistory.calicosites.com>
- Fig 2.03 Practice defining identity: association of place to product. Sourced from: Fox, Joe. <http://fineartamerica.com>
- Fig 2.05 Newcastle's Millenium Bridge. Sourced from: Welch, Adrian. www.e-architect.co.uk
- Fig 2.06 View of the Baltic Art Centre. Sourced from: www.newcastlegateshead.net
- Fig 2.08 Gateshead Sage music centre by Foster and Partners. Sourced from: Gurak, Wojtek. www.mimoa.eu
- Fig 2.09 Interior of Siza's changin rooms. Sourced from: Guerra, Fernando. <http://www.agefotostock.com>
- Fig 2.10 Interface between rock and architecture. Sourced from: architecturevideo.com
- Fig 2.13 Afangar by Richard Serra, framing the horizon. Sourced from: Reinartz, Dirk. <http://www.m-bochum.de>
- Fig 2.14 Afangar by Richard Serra, indicating topography. Sourced from: Reinartz, Dirk. <http://www.m-bochum.de>
- Fig 3.06 Hydraulic harvetsing of bouchot. Sourced from: Prou, Jean, and Phillipe Gouilletquer. The French Mussel Industry
- Fig 3.07 Spat collection of bouchot. Sourced from: Prou, Jean, and Phillipe Gouilletquer. The French Mussel Industry
- Fig 3.08 Seeded bouchot piles. Sourced from: Prou, Jean, and Phillipe Gouilletquer. The French Mussel Industry

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