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Aquaculture opportunities in Torres Strait

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Executive Summary

Aquaculture opportunities are currently limited in the Torres Strait region due to a lack of knowledge and experience. This project was undertaken to gain knowledge, understand aquaculture methodologies and explore potential opportunities throughout the region. This was achieved by visiting several aquaculture sites and speaking to experts in the field.

This included a visit to Pohnpei - Micronesia in the Pacific Ocean to see the clam aquaculture farm and its community based setup and partnership with the local indigenous population. The Darwin Aquaculture Centre in Darwin, Northern Territory in Australia was also visited to better understand the challenges of doing aquaculture within Australia. Lastly, Aquarium Industries in Melbourne was also visited to better understand the potential markets for farmed marine products, not only for the aquarium trade, but to better understand the process of product handling, product storage and preparation for the markets.

The knowledge and experience gained from this project was significant and will be used to develop the most appropriate aquaculture venture suitable for the Torres Strait region into the future.

Introduction

In the Torres Strait there exists new opportunities for economic benefits for the region in the marine industries. Opportunities such aquaculture specially farming and exporting marine hand collectables such as live clams, live rock and corals into the aquarium trade both domestically and internationally. Currently there exists limited information and experience in the Torres Strait region.

In the Torres Strait region communities face many financial challenges which include a high cost of living, a low socio-economic base and a limited amount of economic and training opportunities in the marine and seafood industries.

With the scholarship from the FRDC, one of the primary outcomes is to gain a better understanding of aquaculture, the potential opportunities and challenges for the Torres Strait region, the markets and the development of potential infrastructure in the communities.

There is also limited information around aquaculture and what can be potentially farmed and exported out of the region. More information is needed to give Torres Strait Islanders a better understanding into this potential economic opportunity especially around production techniques, husbandry and the supply chain.

Objectives

The objectives for this project are as followed:

1. Develop a very good understanding of clam shell and other hand collectable aquaculture techniques and models which are suitable to the Torres Strait environment.

2. Develop networks within Australia and internationally that I can utilize for technical advice when developing my venture.

3. Develop a very good understanding of the ornamental aquaculture industry markets and business opportunities both national and international.

4. Develop business management skills in order to eventually become self-employed

5. Develop skills and knowledge in order to carry-out environmental monitoring activities that are associated with an aquaculture activity.

6. To eventually own a business that can provide employment and training opportunities for other Torres Strait Islanders with aquaculture interest.

Method

Clam aquaculture – Pohnpei, Micronesia

In 2012 I travelled over to Pohnpei - Micronesia to visit an active clam farm. Dr Simon Ellis provided me with a lot of information about clam farming and how they were actively breeding and reproducing clams for the surrounding communities to grow out to a commercial size to sell for themselves. Dr Ellis provided me with electronic copies of his manuals and textbooks. Dr Ellis also gave me a tour of his facility and described in depth his daily routines and production schedules.

Dr Ellis also gave me a tour of the low scale community clam growing structures. The structures were located near the actual communities in the lagoons and were made with renewable materials such as wood and rope. The clams themselves were glued to these structures that looked like tables underwater and pearl baskets.

On the third day in Pohnpei Dr Ellis, I and other workers actually went out onto the outer reef to collect clam sperm and eggs. This activity provided me with an understanding as to how they bred new clams specifically looking at how they extracted reproductive fluids to allow this to happen. This activity requires specific skills and expertise such as scuba diving and the collection of the reproductive fluids.

The trip to Micronesia was informative and provided me with an enhanced understanding into clam breeding and community based aquaculture.

Clam aquaculture – Darwin, Northern Territory, Australia

Shortly visiting Micronesia, I also travelled to the Darwin Aquaculture Centre to visit Ann Fleming and Evan Needham to gain a better understanding of clam aquaculture in Australia. Dr Needham gave me a tour of his facility and described in depth his daily routines. He also provided me with information regarding how they were trialling with NT indigenous communities clam aquaculture. Later Dr Needham informed me about other marine species within the facility that were growing.

He discussed the potential opportunities for these other species and that the facility was still doing research into potential aquaculture methods.

Also during that day I caught up with Ann Fleming, Chief Executive Officer for the facility. We spoke about the current status of aquaculture within Australia and its opportunities. Ms Fleming gave me an insight into other potential species that could be growing in the marine environment within the Torres Strait region.

The trip to Darwin was very helpful and provided with a heightened understanding of not only clam breeding and community based aquaculture within Australia but also looking at other potential species for the Torres Strait region which has a very similar climate

Aquaculture – Torres Strait

Upon my return from my visit to Darwin I visited my mentor, a local pearl farmer and his pearl farm in the Torres Strait, to gain a local understanding of aquaculture within the region. The pearl farm has been established since the 1960's and has produced many marketable pearls over the years. I met with Toshikazu Takami, owner of the pearl farm and the Kazu Pearl Company.

We had a discussion around water quality, aquaculture in the region, transporting, product handling, pearl farm infrastructure and the local and national markets for pearls. Mr Takami through his knowledge and experience gave me great insight into establishing an aquaculture venture in the Torres Strait region.

Melbourne – Aquarium Industries

My last visit was to Melbourne to Aquarium Industries to meet Dr Josiah Pitt. Aquarium Industries is a privately owned business and one of Australia's largest wholesalers of aquarium products. Dr Pitt is the Operations Manager and whose knowledge of domestic and international markets is appreciated. Dr Pitt gave me a tour of the facility and showed me how they stored, handled and distributed their products.

Later we discussed possible opportunities for the Torres Strait region and possible products that Aquarium Industries would like from potential suppliers. We also discussed practical steps in achieving these opportunities and how he and I could work together.

Results

Some of the results that were achieved from this professional award activity were gaining a greater and better understanding in the following:

a. Aquaculture potential of Torres Strait

b. Infrastructure needed for different species and techniques

c. Challenges that relate to remote locations, water quality and management requirements

d. Market access and demand for products

e. Possible opportunities through established industry networks

Aquaculture

In the world there exists several established aquaculture ventures from small scale community based farms utilising low-scale infrastructure to large scale commercial farms co-existing in urban settings. For the Torres Strait region, aquaculture has existed in the form of 'Mother of Pearl' farms. Currently the existing farms have multiply sources of income and cannot be viably through the production and selling of cultured pearls alone.

However, there are other opportunities that exist within the region. To exploit these opportunities a lot of work will be needed in reviewing current legislative arrangements, trialling appropriate infrastructure, training a workforce, establishing a market and developing an appropriate distribution system.

Infrastructure

From the farms that have been visited, significant insight has been gained into several farm models and appropriate marine products that could be utilised in the Torres Strait region. A community based setup looks practical however much research is needed into whether such a setup is financially viable and sustainable on ground in the region. Also much consideration will need to be given to the region's locality and the cost of getting resources there.

Challenges

There exist several challenges that will be experienced when beginning an aquaculture venture in the Torres Strait region. During this project I found it hard in securing land to establish a low scale operation. The land throughout region is all under native title tenure which means any development of the land, consultation and agreement is need from Traditional Owners before any progress can happened. Because of the delay in this process I was forced to alter the objectives of the project. As result of this, I did not establish a low scale farm but visited an established wholesaler that purchase products for the aquarium industry from primary producers.

Other challenges will include reviewing the state and commonwealth legislative which will take time as the potential marine products that could be farmed will need to be examined and regulated into the future. Also finding an experienced workforce, if any establishment is to succeed, it will need to look into specialised training in handling, storing and distributing the products.

Markets

There exist several markets both domestically and internationally for farmed products from fish, prawns and oysters for the restaurant industry to clams, live rock and coral for the aquarium industry. My visits to Pohnpei, Darwin and Melbourne have given myself the knowledge that there exist markets within Australia and internationally for farmed clams, live rock and coral.

If I am to establish an aquaculture venture into the future, I can seek assistance from the people that I have met through this project.

Possible opportunities

At the conclusion of this project several opportunities were evident and could be pursued as the next step. These opportunities include establishing a low scale operation once land is secured to build the infrastructure, to begin collecting and exporting live rock once licenses are attained and to undertake a pilot project that looks into specially farming coral and exporting it for the aquarium trade.

All the opportunities mentioned above are quite possible in being achieved if the correct planning and development is undertaken and funding is made available. However, a lot of thought and consultation is also needed to happen as such ventures will need community support and engagement.

Conclusion

This project has allowed me to gain great insights and knowledge into aquaculture from low scale ventures in a community based setting to a government funded facility. The knowledge gained will assist me in planning and developing a venture that will suit my situation and current expertise. The people that I have met along the way are now a part of my professional network and could be possible partners into the future.

As per the objectives of the project I feel as the project leader objectives 1-4 were achieved. As for objectives 5-6, they are a work in progress. I feel these objectives will be achieved with more time spent with aquaculture specialists and local businessmen in the region.

As an individual I feel that I now possess the knowledge and understanding to undertake further research through the contacts made through this project to possibly establish a low scale aquaculture venture in the Torres Strait. I am also optimistic the networks that were formed during the project can possible also lead to business opportunities into the future. However, I look forward to exploring further opportunities and learning more about aquaculture, its challenges and economic benefits both now and into the near future.