Beyond the Beach: A look into the community value of the Shark Spotters Organisation.

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Plagiarism Statement

I know the meaning of plagiarism and declare that all of the work in the dissertation, save for that which is properly acknowledged, is my own.

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Abstract

The Shark Spotter organisation operates in the False Bay area of Cape Town, South Africa. Their main goal is to help minimise the interactions between beach goers and marine megafauna, with special attention given to sharks. Their employees do this through an exclusion net and a flag signalling system. Shark Spotters provides employees opportunities to increase their knowledge and skills in areas that can be used outside of their employment duties to create supplemental income sources and increase community health. The purpose of this study was to determine the number of persons each Shark Spotter employee supports with their income and investigate if the skills developed through Shark Spotters are being used outside of the employment duties to contribute to the local community or informal economy. This study used a combination of qualitative and quantitative interviews to gather this data, which was analysed using descriptive statistics and thematic analyses, respectively. The data was inconclusive about the specific number of dependents each employee had, as households were communal and they also sometimes contributed to a secondary residence but showed that their income was essential for the livelihood of their households. The skills being gathered by the employees were shown to not be used outside of their work duties due to a range of factors that include a lack of an available market, a communal spirit that doesn't promote financial gain from neighbours, and violent criminal activity. Since employees were limited in the ability to use the skills gained through Shark Spotters outside of their employment, there was a great interest in increasing non-marketable knowledge through environmental education to participate in local research efforts. If Shark Spotters wish to improve the ability of their employees to contribute to their community or participate in the informal economy, partnerships would need to be made with other organisations to address the complex barriers to entry.

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CHAPTER 1: Introduction:

The intention of building a green economy, and the green jobs within it, is to respond to the combined issues of global climate change while also being a contributor to economic growth and stability (Borel-Saladin and Turok, 2013). As defined by the United Nations Environment Programme green jobs are *"jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high efficiency strategies; de-carbonise the economy; and minimise or altogether avoid generation of all forms of waste and pollution"* (United Nations Environment, 2011). In the South African context, the green economy and its jobs currently range across multiple industries and scales. Easy examples of national and provincial green economies would be the renewable energy industry or inter-provincial conservation efforts like the Litterboom Project, which uses barriers to prevent physical pollutants (i.e. plastics) dumped in rivers from travelling to the ocean[1]. People who live near these barriers can be hired to collect and sort the waste from the rivers. Within a municipality there are again examples of the green economy with different focuses. Organisations like Cape Town Environmental Trust (CTEET) take care of estuaries like Zandvlei and protected biodiversity in surrounding neighbourhoods[2], while Cape RADD provides training and researchers to assist studies that are monitoring the marine environment in the False Bay area[3]. Shark Spotters is one of the organisations currently operating in the Western Cape that provides green jobs. Shark Spotters provides a non-lethal way to prevent shark attacks by employing teams of spotters around False Bay to keep watch over the waters from vantage points on the

[1] https://www.thelitterboomproject.com/

[2] https://una.city/nbs/cape-town/cape-town-environmental-education-trust

[3] https://www.caperadd.com/

neighbouring hillside. When a spotter sees something, they radio their partner on the respective beach to raise a flag that can signal it is either dangerous or safe to enter the water. Spotters and their partners working by the flags will exchange roles from one shift to the next. Although the namesake of the organisation points to this effort to prevent shark attacks, the Shark Spotter organisation also prevents attacks at Fish Hoek beach through the use of an exclusion net that is pulled into the water in the morning and retrieved at 5pm in the evening (going forward the team responsible for installing and retrieving the net will be referred to as the “Net Crew”) . Beyond preventing shark attacks, Shark Spotters also employs a team to work on coastal conservation, maintaining coastal vegetation through the removal of invasives and pruning of endemic species. This team is also responsible for helping remove kelp and litter building up along the coast, or removing waste that might wash up on shore. The staff also receive ecological education which they can pass on to those who are curious in the areas they work. By providing informal education and promoting a cleaner and safer environment for the beach going community, there can be many positive benefits to coastal businesses while also improving the conservation mentality of the coastal communities. This intersection between jobs that promote environmental sustainability and provide economic growth is critical to South Africa.

By contributing to economic growth, green jobs have the potential to help with poverty alleviation. One possible way for green jobs to promote social equity and help at-risk communities to start building stability, is to connect green jobs to the informal economies that exist in these neighbourhoods (Smit and Musango, 2015). Shark Spotters is a potential example of this as it hires solely from low-income communities and attempts to

provide skills that can be used for personal revenue or community upliftment. Considering the neighbourhoods that the staff reside in have a high prevalence of violent crime and low employment rates, any injection of skills that can be used for a personal benefit of extra revenue, or a social benefit like providing basic medical care to those who don't have easy access to medical professionals, could potentially carry a massive benefit.

The Shark Spotters organisation was established in 2004 after a run of shark sightings and biting incidents around the peninsula and became a formal partner of the City of Cape Town Municipality in 2006. Shark Spotters operate at beaches around the False Bay area, with the two most popular beaches being Fish Hoek and Muizenberg (Engelbrecht *et al.* 2017). Those employed by this organisation come from largely disadvantaged areas. According to the official outline the goals of the Shark Spotters organisation is to[4]:

- "Reduce the risk of shark bite using effective non-lethal, environmentally responsible methods."
- "Conduct applied research on great white sharks to inform public safety policy, management, and education."
- "Promote education and awareness of shark and ocean related issues (safety and conservation) by providing fact-based, objective, and informed information to the public in a non-sensational way."
- "Conserve and protect marine resources."

[4] https://sharkspotters.org.za/page/about/

- “Provide employment and skills development opportunities for previously disadvantaged South Africans.”

Being a primary earner with stable employment within these disadvantaged communities might suggest that there is a wider community that relies on those earners beyond their immediate family (partner and children). Du Toit *et al.* (2018) was able to show that the informal sector is a large part of how people within disadvantaged communities find the money to survive. People described the activities they would engage in to earn the money as things like washing cars or providing cleaning services to neighbours and nearby residents. This “hustling”, as it was called by those who engaged in those activities, all take part within the informal sector. This “hustling” mentality is exactly what Shark Spotters is targeting with their rope work training. Shark Spotters provided the opportunity to learn how to splice, knot, and mend rope so that their employees could fix holes in the exclusion net themselves without spending money on repairs and wanted to investigate if employees would use these skills to supplement their income. The Shark Spotter organisation believed there would be a market within the employee communities for people who can create or mend fishing nets, soccer goals, or cricket batting cages.

There is a lack of global, and specifically South African, fine-grain data on the number of people that “green” jobs, like Shark Spotters, support beyond direct employment. Through skill development and socially beneficial work, the potential size of communities that rely on green jobs for a livelihood and empowerment is still unclear.

Organisations like Shark Spotters offer skills development in areas that can be used outside of the employees’ official duties. This creates potential for green jobs to indirectly

support the residential communities of its workforce by building skills that can transfer beneficially to the communities. Shark Spotters has offered its workforce training in first aid, rope and net repairs, landscaping, and environmental education.

This skills development creates the potential for those trained to offer their knowledge to their community for added income or train those in their household who are not working to try and have more income sources spread across the household. The aim of this project is to investigate the intersection of the potential positive impacts from skill development and the reality that limits those impacts, as it has not been well researched and is not well understood for the work force specific to the Shark Spotter organisation.

Research Question/Study Aim

Study Aim

How do the skills, knowledge and income attained by Shark Spotters employees transfer to their residential communities?

Study Objectives

1) Determine household dynamics of Shark Spotter employees, and how many people rely on Shark Spotter staff for a livelihood.
2) Determine which skills that employees gain from Shark Spotters are being used within their residential communities for monetary gain and/or community upliftment.
3) Determine why some skills might not be able to be used effectively outside of the work environment.

CHAPTER 2: Literature Review

Green Economy

During the Rio+20 conference the concept of a Green Economy or Green Growth was coined and has since seen an increase in prevalence and momentum within the political arena (Loiseau *et al*. 2016, Merino-Saum *et al.* 2020). The Green Economy has been defined in its simplest form as a framework for a socially inclusive economy that minimises environmental damage by being more resource efficient and lower in carbon production (Loiseau *et al.* 2016, Georgeson *et al*. 2017). This term was commonly used to address financial and climate crises but as the term increased in prevalence within political initiatives and decision makers around the world started creating their own Green Growth action plans, tenets of this philosophy have been applied to an increasing number of economic sectors (Merino-Saum *et al.* 2020). This broadening application of the concept of a Green Economy has led to increasing interpretations of what constitutes a Green Economy and what methods of Green Growth can achieve such an economy, some of which can be contradictory. Some of the ambiguities or contradictions within the concepts of Green Growth and Green Economy can be partially attributed to how those concepts are used across various economic sectors, academic fields, and geographic scales. Although the methods or policies for achieving a Green Economy might shift depending on scale and sector of the problem, the underlying goals of social equitability and inclusivity and environmental protection can be found across nearly all of its applications (Merino-Saum *et al.* 2020).

Although a Green Economy aims to create more economic equitability and resilience across communities, if the metrics for success are based on macro-economic statistics, then the transition might still disadvantage certain groups. If the green economy is measured only by the number of people employed in what could be considered green jobs, then certain populations might be heavily disadvantaged. Depending on the scale of the Green Growth initiatives, environmentally conscious jobs might not be equally distributed across differing skill levels. This can create further economic imbalances as high skill jobs that require retraining a workforce might not be offered to the older populace. Workers who are primary providers for their household, but nearing retirement age might be perceived as not worth investing time in, compared to training a younger workforce who could be assumed to remain in the Green Economy jobs for longer, thereby reducing the amount of overall training that needs to be conducted. This imbalance in opportunity can be hidden within macro-economic metrics if the net change in employment within a Green Economy is positive.

With the potential for Green Growth to create its own social inequalities, any efforts to transition to a Green Economy need to consider what trade-off between environmental protection and economic impact are justified, so that the brunt of the responsibility to enact change falls on the highest contributors to environmental degradation and the most economically resilient communities.

Transitioning to a Green Economy

The concept of Just Transition was introduction in the 1970s and has seen a steady increase in consideration at the Conference of the Parties (COP) meetings and within the

Intergovernmental Panel on Climate Change (IPCC), with the Paris Agreement formally recognising it as an “imperative of a just transition of the workforce” (Atteridge & Strambo, 2020). Over the decades that this concept has been around, the academic discourse that has evolved around it has branched into 5 themes of “Justice Scholarship”: (1) just transition as a labour-oriented concept, (2) just transition as an integrated framework for justice, (3) just transition as a theory of socio-technical transition, (4) just transition as a governance strategy, and (5) just transition as public perception (Wang & Lo, 2021; Heffron, 2021). Each theme varies on what factors should be considered and what the definition of a Just Transition constitutes. Some have been around for many years and are separated into sub-categories that do not always have overlapping concepts of “Justice Scholarship”; one such example is that of just transition as an integrated framework for justice which is a combination of Climate Justice, Environmental Justice, and Energy Justice (CEE) (Heffron, 2021). There has been a collection of literature devoted to discussing a need for convergence in how justice is conceptualised (Wang & Lo, 2021; Heffron, 2021; Stevis & Fellis, 2015), and that there is need for greater inclusion of labour unions and cooperation (Stevis & Fellis, 2015). Where the literature is lacking is in empirical studies or practical suggestions that have real world application (Wang & Lo, 2021; Jenkins *et al.*, 2020).

The Stockholm Environment Institute (SEI) laid out 7 key principle of a Just Transition: (1) actively encourage decarbonization, (2) avoid the creation of carbon lock-in and more “losers” in these sectors, (3) support affected regions, (4) support workers and the wider community impacted by closures or downscaling, (5) clean up environmental damage and ensure related private costs are not transferred to the public sector, (6) address existing

economic and social inequalities in new system, and (7) ensure an inclusive and transparent planning process (Atteridge & Strambo, 2020).

The literature around Just Transitions has largely been focused on shifting to a low-carbon economy but some of the themes and principles that can guide a Just Transition can also be applied to other aspects of a green economy outside the energy sector. By creating jobs that can address economic and social inequalities, workers and their wider communities can be supported through green jobs. One method for supporting disadvantaged communities could be through knowledge and skill development. Organisations that can offer opportunities for their employees to gather skills and knowledge which transfer to a wider community can promote a Just Transition to a Green Economy. If those skills can help provide a community with services that were previously lacking, then three of the SEI key principles can be satisfied (3, 4, and 6). If the knowledge being gained by the employees also increases their understanding of the factors impacting Global Warming and sustainable practices, then the Just Transition will also encourage a more carbon conscious community that might be more protective towards environmental damages (SEI principles 1 and 5). Since the skills and knowledge would be placed in the hands of disadvantaged community members the Just Transition would also be more distributive in nature.

Green Jobs

When looking for available research on green jobs in South Africa, the papers returned mostly address the impact green jobs have on growing the economy and unemployment rates, how green jobs can be used in local governance, and how best to define what

constitutes a green job (Jacob, 2015; Pearce & Stilwell, 2008; Stilwell & Primrose, 2010). A literature review of green jobs has shown that the focus of studies as of 2022 were mainly concerned with green job creation, correlation between green business and green jobs, and the role of local government in supporting green jobs (Stanef-Puică *et al.*, 2022).

Green jobs should be seen as more than just environmentally conscious employment. It should also include any jobs that help advance the development of sustainable societies. Wendy Grisworld (2012) suggests three elements that can be incorporated to help develop sustainable societies: “workforce development, STEM education, and community education for sustainability.” Green jobs have been shown to generally require a higher skill content in its workforce (*Consoli et al.,* 2016), and that depending on the industry some skills transfer might be possible when shifting operations from a “business as usual” to an “environmentally conscious” approach (*McCoy et al.*, 2012). This can present a challenge when trying to open up green jobs to the wider unemployed community. Although I would agree with Grisworld’s three elements for a sustainable society, I would place greater emphasis specifically on workforce development and sustainability education. Green jobs have been shown to require a greater skill capital within its workforce than non-green jobs in terms of high-level cognitive and interpersonal skills (*Consoli et al*, 2016) both of which can be developed within educational institutions. STEM education would be valuable to increase the scientific literacy of a potential workforce and promote greater understanding of how environmental systems function, but generally requires several years of continuous education with its foundations in primary school courses. This would mean that for a developing country like South Africa, where the education system is struggling, trying to increase STEM education would rely on the

improvement of the overall education system. I would argue that specific and targeted workforce development would be more accessible to the general public. Couple this with conservation and sustainability education efforts that focus on trying to connect personal development or wellbeing to environmental development could increase the number of people who are aware of their role as an environmental stakeholder. As more people are aware that their success is tied to a sustained environment, there would likely be a greater level of community involvement or consideration for the conservation of such ecosystems.

Green Jobs in South Africa

South Africa, like many underdeveloped or developing nations, has a large informal economy. An informal economy, as defined by Smit and Musango (2015), is essentially any economic activity that is not entirely covered by a formal agreement or arrangement. Although the informal economy is usually considered to be made of illegal activities such as trading illicit products or sex work, legal work such as day labour or selling produce is also part of the informal economy. The informal economy is actually a route to help people in disadvantaged communities find an income. Due to the flexible nature of this economy, it is also better able to adapt to a changing economic climate. The provision of income through this economy to the most impoverished, especially women, allows it to potentially contribute to achieve the Sustainable Development Goals (Chambwera *et al.* 2011).

To bring this concept of informal economies into the context of this study, much of the small-scale fishing that Shark Spotter employees had experience with could be considered part of their communities' informal economies. By providing their employees with skills that can transfer to these local markets, green jobs like Shark Spotters can

provide a greater amount of support to both their employees, by providing them with marketable skills, and their employees' communities by increasing the number of viable labourers within the informal economy.

With three-quarters of non-agricultural Sub-Saharan employment being based within the informal sector (Dawa and Kinyanjui, 2012), finding ways to incorporate the informal sector with the intention of using it as a route towards a more sustainable society or to help support the most impoverished is directly in line with the overarching goals of Operation Phakisa and the South African government to create sustainable economic growth that can maximise socio-economic benefits for its citizens[5].

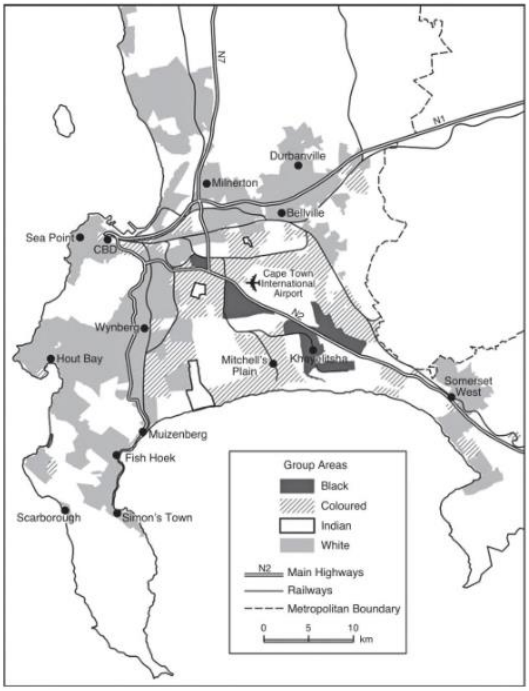
Study Setting: Cape Town as a coastal city

With Great White sharks moving freely along South Africa's coast to and from False Bay, with the highest ratio of large sharks historically being found within False Bay (Nel and Peschak, 2006) there is a need for a system in place to reduce the dangerous interactions between the beach going community and the Great White community. Increased scrutiny has been aimed at removal efforts, through capturing or culling, as shark populations were declining (Dudley *et al.*, 2006) and exclusion nets being shown to have a high potential for bycatch of seals, dolphins, or whale (Nel and Peschak, 2006) and so a new, non-invasive, system was needed to reduce human-shark interaction. This is the niche that the Shark Spotter organisation attempts to fill.

[5] www.operationphakisa.gov.za

This study takes place in the Cape Town eastern peninsula on False Bay where Shark Spotters is located. The Shark Spotters employees primarily come from the disadvantaged community of Ocean View. Ocean View has a history impacted by Apartheid policies which continue to the current day.

South Africa Forced Relocations under Group Areas Act (GAA)



Source: Crankshaw (2012).

Figure 1: Group Areas Act Map

Enacted in 1950, the South Africa Group Areas Act created a legal basis for different levels of government to establish certain areas as "group areas" that could only be populated by a particular race (Johnson-Castle, 2021). It was through this legal framework that the Ocean View community, where many of the Shark Spotter staff live, was created. When the areas of Simon's Town, Fish Hoek, and Noordhoek were reserved for the white population, the non-white or coloured peoples within these areas were forcibly removed to the Ocean View township which was formed in the late 1960s to 1970s. The name of the township was Ocean View was chosen ironically as many of the residents were removed from their sea-side homes, and therefore their view of the ocean. This forced relocation destroyed the Ubuntu (i.e., "Ubuntu embodies all those virtues that maintain harmony and the spirit of sharing among the members of a society"[6]), spirit that existed in the original

[6] https://www.newworldencyclopedia.org/entry/Ubuntu_(philosophy)

communities by forcing different communities to inhabit an area that was not large enough for the number of people being moved there. Coupled with the restrictions on residential areas, the restrictions on the movement of coloured and black Africans had a detrimental impact on the ability of coloured and black business owners to operate their stores that existed in the now white-only communities. There are roughly 42,000 residents of Ocean View in brick houses or apartments. Although the majority of these residents live in roofed dwellings, many homes are overcrowded with the extended family all living together. This has created a prevalence of “Wendy houses”, which are illegally built structures in backyards to house family or tenants. This destruction of the individuals’ sense of community, the current overcrowding, and high unemployment rate has created a host of social issues such as gang violence or substance abuse (*Ocean View* | *Living Hope*, n.d.).

The sudden and forced nature of this change of communities’ realities created disorganisation and demoralisation as residents had no plans in place for how to handle relocation on such a level. Members of the communities forcibly moved no longer knew how to get to work, where their children could attend school and get a religious education or how to grapple with new financial burdens (Cochrane. L & Waleed. C, 2017). I would also argue that the new reality of not knowing one’s neighbours also removed a support network that was previously available (Ross. F, 2009). Relationships that had built up over time between neighbours were suddenly shattered. This meant that any support structure based on trust or reliance between these households was also destroyed. No longer would there be a comfort in knowing one’s neighbours would be there to provide support or advice on how to handle tribulations.

There is also evidence to suggest that reducing residential integration by physically separating dissimilar populations can lead to social frontiers (Dean *et al.* 2019). These social frontiers, which describe stark social or ethnic differences between neighbouring communities, can create impediments to inter-group contact which could otherwise act as extended support networks across differing demographic communities that still share similar lived realities. Although arguments have been made that homogenous populations can help reduce the potential for negative contact between adversarial groups, it is also stated that inter-group conflict is more likely to occur in areas where the boundaries of these social frontiers are less defined (Legewie & Schaeffer, 2016). In areas where resources are scarce, intergroup competition theories suggest “people feel threatened by the presence of out-group members because of real or perceived competition […] for scarce resources.” The spatial frontiers created by the segregationist policies of Apartheid are still present, with neighbourhoods being predominantly populated by specific groups of people (Fig 2). I would argue that integrating previously separated communities would shift this perception of “out-group” members from ethnic or racial distinctions to a socio-economic distinction. Spatial frontiers would then be based on financial and social barriers rather than cultural barriers. Although this could still result in negative interactions between adversarial groups in areas where the frontier boundaries are fuzzy, the fewer number of those boundaries would likely reduce the potential that a community feels like their collective integrity is under threat.

Shark Spotters

Shark Spotters is a good example of an organisation that is dedicated to securing the beaches for recreational use, and shoreline conservation. By setting up multiple teams with different goals, Shark Spotter is able address multiple coastal needs. The spotters and the signal flags are able to help protect recreational beach goers from interaction with sharks and other megafauna. With the ecological knowledge that the staff get when starting work, and the Coastal Crew working year-round, Sharks Spotters takes direct action to help maintain the health of the coast while also educating those who are curious in the surrounding communities. Both of which enhance the tourism experience and allow for that market to grow, to the benefit of coastal businesses.

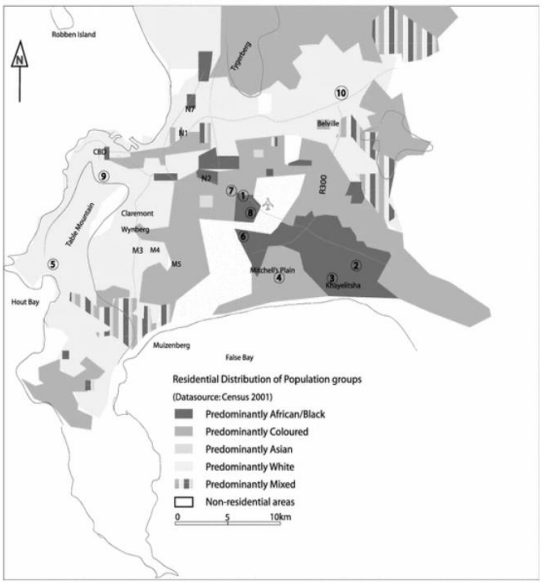


Figure 2: Residential Distribution of Capetonian Neighbourhoods (Landsman & Napier, 2010)

When researching the literature on the impact of Shark Spotters, most papers have looked at their effectiveness in reducing the risk of interactions between recreational ocean users and sharks, the response when a shark does attack a person, and the general awareness and education that the public have towards shark and the possibility of an attack (Engelbrecht *et al.* 2017; Neff & Yang, 2013; Adams *et al*., 2020; Sheridan *et al.*, 2021).

This study will attempt to fill the gap in microeconomic and social value research that the literature is lacking. The next chapter provides a description of the research methods used for this study.

CHAPTER 3: Methodology

This is a mixed methods study with both quantitative and qualitative components. Objectives 2 and 3 were examined through key informant interviews with Shark Spotter staff, and Objective 1 through semi-structured questionnaires with the same staff.

Introduction of Researcher to Shark Spotters

It was through the Knowledge Co-op that I first found out about the request for this study. By contacting the Co-op, they were able to facilitate the introduction between myself and the Shark Spotter management staff that had requested the study.

After meeting the Shark Spotter management staff and hearing what they were looking to investigate with the study, it was decided that in-person interviews would be the best way to proceed. Since Shark Spotters was looking to find out individual household and community information, one-on-one interviews were agreed to be the best method. Since those being interviewed were subordinates to those requesting the study, everyone agreed that the responses would be kept entirely private and Shark Spotter management would only receive the final results. Since many have limited technology and there was the potential for some sensitive personal information to be shared, it was decided the interviews would be done in-person, in a private setting. I recorded the interviews for later analysis but have not shared any amount of the recordings with any party.

Ethical considerations

Permission to conduct the study was granted by Science Faculty Research Ethics Committee (FSREC) at University of Cape Town, South Africa. The participants filled out and signed a consent form (Appendix) that gave permission to use their answers for my study and record the interview, to be listened to by only me. There was no transaction in the form of money or a meal for participation in the study. All responses given were anonymised by assigning interviewee numbers to each participant. This allowed honest answers to be given without the threat of there being any repercussion for speaking openly or giving specific answers.

Quantitative Questionnaire Design

The interview was broken into a quantitative employee household dynamics survey and a qualitative employee key informant interview. When choosing my background questions that I was going to be using to gather quantitative data I chose to use questions from STATSSA General labour Survey (2000), general Household Survey (2002), and Community Survey (2007). I chose these as they were readily available on the STATSSA website and were official questions that had been vetted and approved for use. It also allowed me to explain the interview process more easily to the participant as the first part would be similar to something they might have seen before in a census.

The general topics investigated in the quantitative section for each interviewee were the household demographics (ages and number of persons sharing a residence), the number of dependents that the employees provided for, the number of household members that contributed to the household income, marital statuses, and general expenses.

The selection of these topics was also informed by the census data that was readily available from STATSSA, as this allowed the study group to be compared to the wider communities they lived within.

Qualitative Key Informant Interview Guide Design

The questions for the qualitative aspect were designed more to facilitate a conversation then it was to get consistent comparable responses. With this in mind, questions try to ask broad questions about the individual's role in the organisation and their feelings towards their work and coworkers. From there it looks to direct the conversation towards previous work experience and skills currently being used for work. Once the skills have been established, the questions then try to determine how much those skills are being used outside of the work environment. Finally, this section closes with a look into the interaction between the Shark Spotter staff and the beach communities they help.

By combining these two quantitative and qualitative sections I was able to build a picture around the nature of both the individual households but also the wider community involvement. The focus of the analysis was to look at the type of households Shark Spotter employees support or contribute to and discuss how much the employees interact with their communities through the skills they have gathered from Shark Spotters.

Data Collector Training

All interviews were conducted by me as the principal investigator – masters student. I have completed various university level course, in both my undergrad and graduate studies, that taught interview methods and data analysis.

Data Collection

I carried out applied quantitative and qualitative research to understand the socioeconomic benefits of green jobs (shark spotters) to communities. I conducted interviews with all shark spotters, net crew, and conservation actors within the organisation. Interviews were conducted in person between March 28 and September 7, 2023, for a total of 25 interviews. All responses were recorded for analysis.

Questions investigated the actual and potential skill development that the employees get through the Shark Spotter organisation and how those skills are used outside of the work environment.

Before interviewing the net crew and coastal crew, I met with the teams and introduced myself and explained the purpose of the study and how the interviews would need to be conducted for those who elected to participate. Since the net crew would work as a team in a single location, I would assist with installing the exclusion net to attempt to build a willingness to engage openly and honestly with the study.

Since the Shark Spotters work individually, I would contact their supervisor to find out where spotters who I had not interviewed yet, were stationed. He would let the person on duty know I was coming and that it was alright to participate in the study if they wanted to. Since I couldn't distract the spotter keeping watch I would interview the person at the flag station on the beach.

There was no-one who refused to participate in the study.

List of Interviewees, Location, and Date of Interviews

Table 1a: Net Crew

Interview #	Location	Date
1	Fish Hoek Beach	28 March 2023
2	Fish Hoek Beach	28 March 2023
3	Fish Hoek Beach	28 March 2023
4	Fish Hoek Beach	28 March 2023
5	Fish Hoek Beach	28 March 2023
6	Fish Hoek Beach	28 March 2023
7	Fish Hoek Beach	28 March 2023

Table 1b: Coastal Conservation Team

Interview #	Location	Date
1	Shark Spotter Offices	3 May 2023
2	Shark Spotter Offices	3 May 2023
3	Shark Spotter Offices	3 May 2023
4	Shark Spotter Offices	3 May 2023
5	Shark Spotter Offices	3 May 2023
6	Fish Hoek Beach	12 May 2023
7	Fish Hoek Beach	12 May 2023
8	Fish Hoek Beach	12 May 2023

Table 1c: Spotters

Interview #	Location	Date
1	Fish Hoek Beach	14 August 2023
2	Fish Hoek Beach	14 August 2023
3	Muizenberg Beach	24 August 2023
4	Muizenberg Beach	24 August 2023
5	Muizenberg beach	30 August 2023
6	Muizenberg Beach	30 August 2023
7	Muizenberg Beach	30 August 2023
8	Muizenberg Beach	30 August 2023
9	St James Beach	30 August 2023
10	St James Beach	7 September 2023

Problems and Limitations

Due to seasonal complications, interviews were not able to take place during the winter months. The net crew does not operate during these months and my interviews were done earlier in the year. Since the net crew jobs are seasonal these individuals have to find alternative income or transfer to a different group within Shark Spotters. This study did not find out how those who are not able to transfer to a different group supplement their income.

There were a few employees who did not have a wide English vocabulary and since I am strictly monolingual there may have been some questions that were not presented clearly to the respondent. Since the interviews needed to remain anonymous there was no way to translate my questions quickly and easily from English to their home languages and

their answers back to English. If this had an impact on the study, it would likely be part of the discussion section of the interview about skill development and utility.

Since I did not have access to the interviewees' communities, I could not verify the background questions about their households. There is little evidence to suggest that any answers were blatantly false, but the potential for something to be exaggerated or underplayed does exist.

Due to how household incomes and duties were shared, very few of the interviewees were regularly responsible for the household expenses. Most added whatever was not sent to a child/partner to the pool of income for their household, which would then be used to buy groceries and pay for bills by other members of that household. This made determining expenditure patterns unfeasible.

Data Analysis and Data Management

Data was separated into a quantitative and qualitative section before analysis. Quantitative data was analysed for comparisons between the household dynamics of the employee's versus the household averages for their geographic area. Descriptive analyses focused primarily on number, means and percentages across categories of answers from the quantitative questionnaire. Data are presented primarily in figures and graphs. No statistical analyses were completed on this section as it was used as background data to create a more complete picture about the household conditions of the employees.

Questionnaire answers were recorded on paper and also audio recorded. Quantitative data were entered in excel by the principal investigator from paper notes and cross-checked with audio recording. Excel (Microsoft 365) was used for quantitative analysis.

The Qualitative data was analysed for common themes across multiple interviews. The themes were then presented to address the research objectives. Emerging themes that did not directly relate to the research questions were also noted to present a more holistic view of the employee experiences. The thematic analysis used to analyse the data for objectives 2 and 3 was informed by the Braun and Clark paper "*Using thematic analysis for psychology"* (2006) as it presented clear steps and phases of analysing qualitative data. The steps of thematic analyses they lay out include familiarising yourself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. The steps were carried out in this study as follows:

***Familiarisation with data*:** I listened to each recording repeatedly and transcribed quotes that were either directly related to the study objectives or presented an emerging theme that helped inform the reasoning behind the interviewee's answers.

***Generating initial codes*:** Quotes were referenced based on the sex and age of its owner. For private reviewing purposes, the quotes were also referenced to the recording they came from and time stamp within the recording to ease the process of locating the quotes for additional review and confirmation of the intended message.

Searching for themes: Themes were chosen based on the relevance they held to the initial qualitative study objectives (objectives 2 and 3). Responses that seemed to support

or add depth to the responses that directly addressed the study objectives were regarded as emerging themes.

Reviewing themes: The various answers and themes across all interviews were then compared against one another to find commonalities or unexplained deviances. Themes that held across multiple interview questions or responses were combined and condensed. Themes that seemed to have multiple layers were broken down into main themes and supporting or sub themes. Themes that were not directly related to the objectives but seemed to provide a more holistic understanding of the themes presented were regarded as emerging themes and presented in connection with the objectives they related to most closely. Themes that were specific to a certain interview or were not investigated enough to provide sufficient supporting evidence were removed from the reporting process.

Defining and naming themes: Each theme and sub theme to be presented in the report was given a title to clearly define the topic and ordered based on the scope of the topic being addressed and the objective number it related to.

Producing the report: The themes were then presented in order that created the best narrative story and supported with extracts and analysis of those extracts.

Validity and Rigour

Validity of Quantitative Data

STATSSA has a built-in quality assessment framework to ensure the questions used are valid and reliable. As all my questions were used verbatim from STATSSA census, I relied on their Statistical Quality Assessment Framework (SASQAF, 2010).

Rigour of Qualitative Data

In order to try and improve the rigour of the qualitative research findings being presented I used the framework laid out in Pope and Mays paper "*Assessing quality in qualitative research"* (2000). This paper was chosen as a guide as it is commonly used in qualitative analysis and is currently cited by 6020 other papers. Pope and Mays also lay out 6 clear elements of improving the validity of the research which are triangulation, respondent validation, clear exposition of the methods of data collection and analysis, reflexivity, attention to negative cases, and fair dealing. These 6 elements were carried out in relation to this study as follows:

Triangulation of research data: By comparing the data collected from all the members of each of the employment groups of Shark Spotters (net crew, coastal rehabilitation crew, and shark spotter crew) I was able to compare and contrast the answers to find common patterns and develop an interpretation of the responses.

Respondent validation: After each response was given during the interview the investigator would repeat what their understanding of the answer given was to ensure the

researchers view aligned with the study subjects. Ways of doing this were using statements like “So what you’re saying is… (repeat the answer back as the investigator understood it)” or “Do you mean to say… (state the core tenet of the study subject's answer as understood by the investigator)”. This was done to minimise the chance of miscommunication or misunderstanding the important points the study subjects were trying to express.

Clear exposition of methods of data collection and analysis: Before conducting any interviews, a meeting was held with the intended study subjects to provide a clear account of the process of data collection and goals of the study laid out by the Shark Spotter organisation and myself. A consent form was also provided to study participants to read and sign. Consent was then verbally attained at the beginning of each recording with an emphasis placed on the voluntary nature of participation meaning that none were mandated to engage with me and if they chose to sit for an interview, they were not obligated to answer any question they were uncomfortable with.

Reflexivity: The biases held by the investigator were not fully understood until after common themes arose from the study subjects that did not align with my expectations. The investigator biases expectations going into the study are stated in the report to show this factor was considered during the analyses. The investigators socio-economic and demographic background is stated in the report and potential reasons for the investigators bias going into the study are explained and compared to the background of those being interviewed.

Attention to negative cases: Although responses that ran counter to the common themes were not titled and presented as separate themes, they were discussed to show that there was variety in how certain questions were answered to limit any suspicion that answers to certain questions were provided to the study subjects. This is also addressed under reflexivity as the investigators bias is clearly stated to be opposite to some of the responses received from the study subjects.

Fair dealing: Since different groups of employees were interviewed, the data collected was not regarded or presented as being ubiquitous or exemplary of the entire group of study subjects. Common answers were grouped together but not stated to be the sole perspective about any issue. The variety in the roles and relationships held by the study subjects was represented in the differences in responses given between study subjects.

CHAPTER 4: Findings

The quantitative and qualitative data was gathered through interviews with the employees of the Net Crew, Coastal Rehabilitation Group, and the Shark Spotters. As mentioned in the introduction, the Net Crew and Shark Spotters help protect the coastal community from interactions with sharks, while the Coastal Rehabilitation Group helps keep the beaches and coastline clear of debris, deceased animals washed on shore, and invasive vegetation. All of these positions are entry level positions within the Shark Spotter organisation and all of these employees receive a wage every fortnight. The Net Crew is the only seasonal position that is active daily during the summer months, on weekends during Spring and Fall, and not operating during Winter.

Quantitative Findings

Objective 1: Household Dynamics

Residential Data

Shark Spotters provides seasonal and stable employment to people living in lower income neighbourhoods. The majority of the interviewed workforce resides in Oceanview (Fig 3), with the remaining persons living in various suburbs of Grassy Park, Muizenberg (Steenberg and Seawinds), and Khayelitsha.

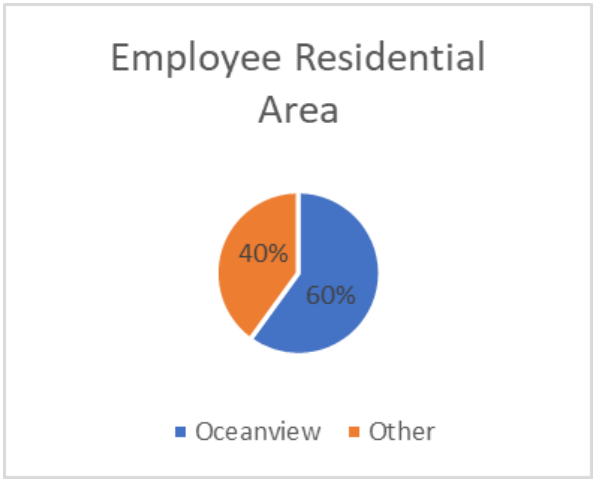


Figure 3: Employee Residential Area

Image 1: Ocean View Neighbourhood (Google, n.d.)

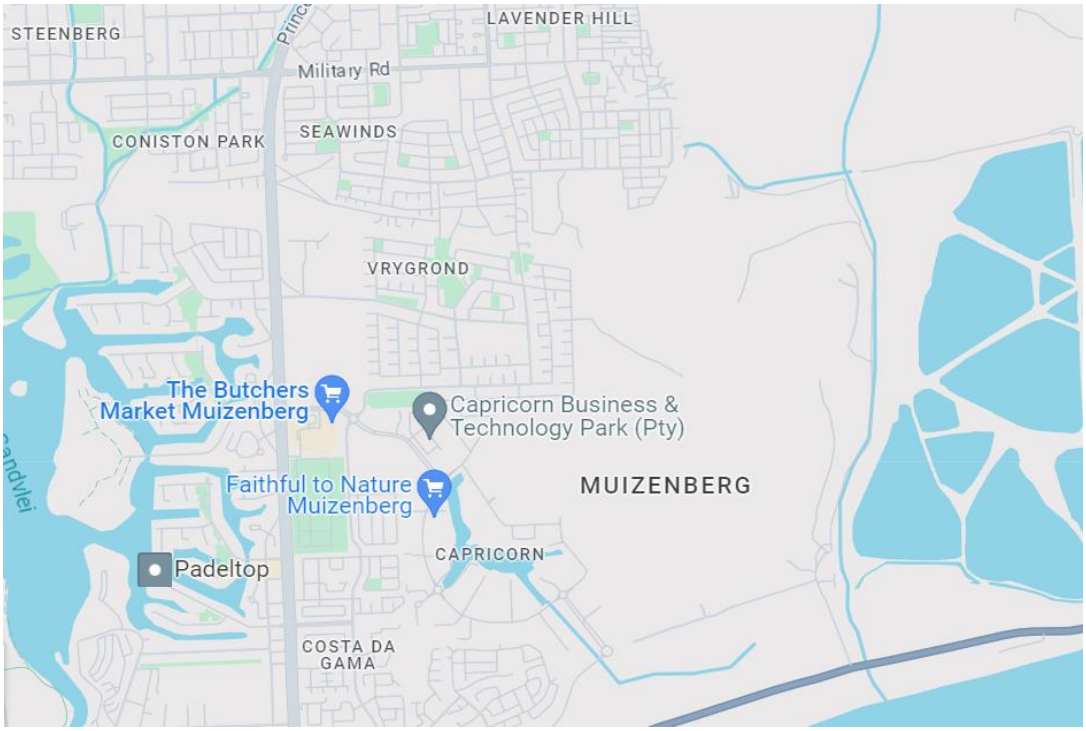


Image 2: Muizenberg Suburbs (Google, n.d.)

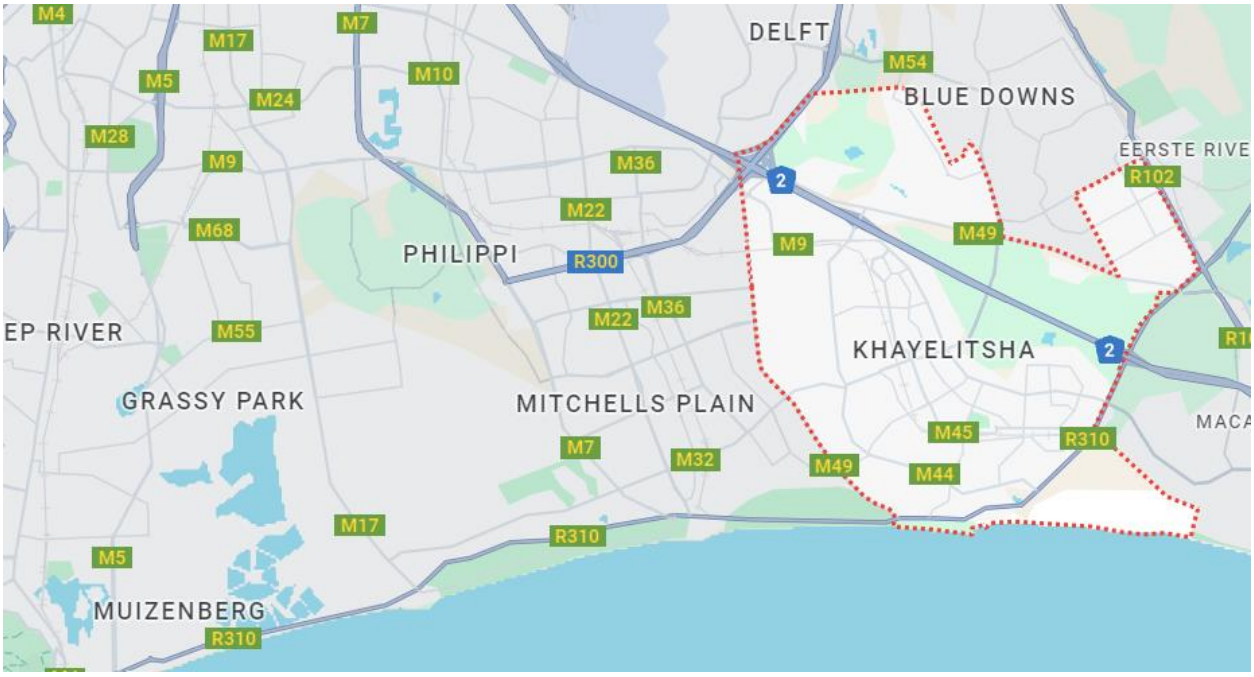


Image 3: Khayelitsha Neighbourhood (Google, n.d.)

Sex and Age Data

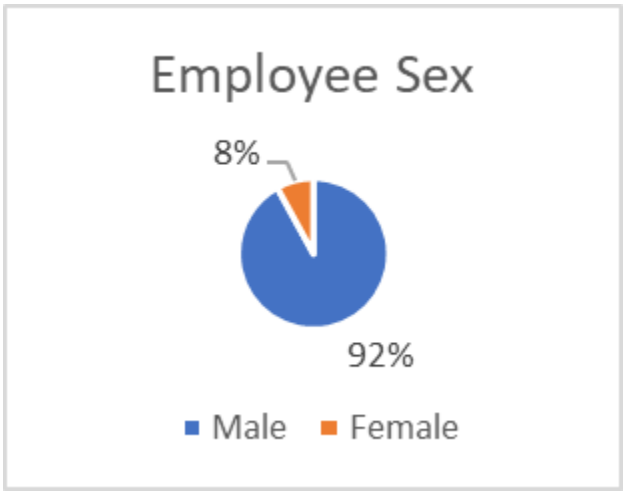


Figure 4: Employee Sex

There are clear similarities across all the employee households. The breakdown in sex of the employees leans heavily towards men (Fig. 4). The manual labour that is required for the net crew and coastal crew might be driving this asymmetry but considering that there are women as part of the net crew there could be more factors driving this imbalance that were not discovered.

The age ranges for the employees shows that the majority of the workers are younger than 35 years old (Fig. 5). The Net Crew showed the youngest average age (26.5 years old) with the Coastal Crew being the second youngest (30.75 years old) and the Spotters being the most senior members of the three groups (37.1 years old). The average age of the Coastal Crew was the closest to the Average age across all the groups (32.12 years old). This difference in the general ages of the members of the different groups could be representative of the nature of the work. The greater requirement the Net Crew tasks have for physical fitness might suggest why the members of that group are generally younger, or that more senior workers with the Shark Spotters have promoted themselves to the less strenuous positions. This group selection based on seniority could also be supported by the employment length of the interviewees.

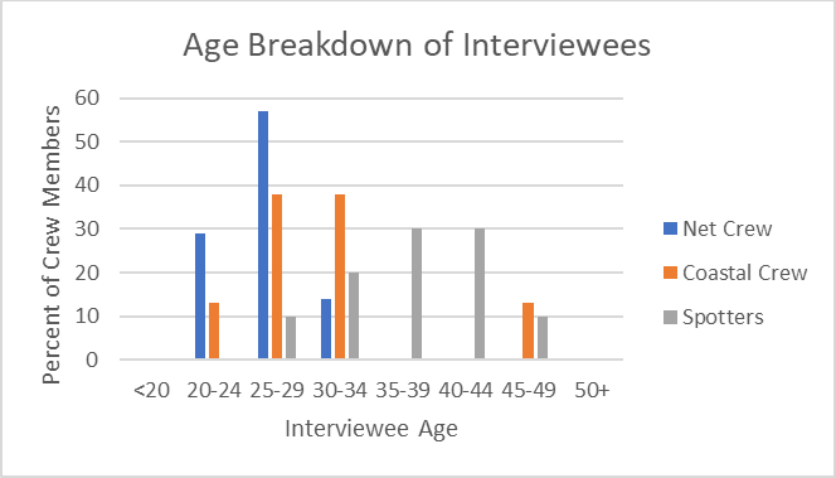


Figure 5: Employee Age Ranges

Employment Length

The seniority seen amongst the Spotters in the age breakdown of the different groups is consistent with the range of employment length seen across crews. The Spotters, who

were on average the older members, showed the longest average time with the Shark Spotters organisation (16.6 years), while the average employment length was similar for the members of the Net Crew (3.28 years) and Coastal Crew (3.25 years), which was made up of a generally younger workforce (Fig. 6). This pattern in employment length across groups could support the idea that positions as a Spotter are the more sought-after role in the organisation. This hierarchy across the different groups was partially supported in the interviews but was not strongly stated or common among the respondents.

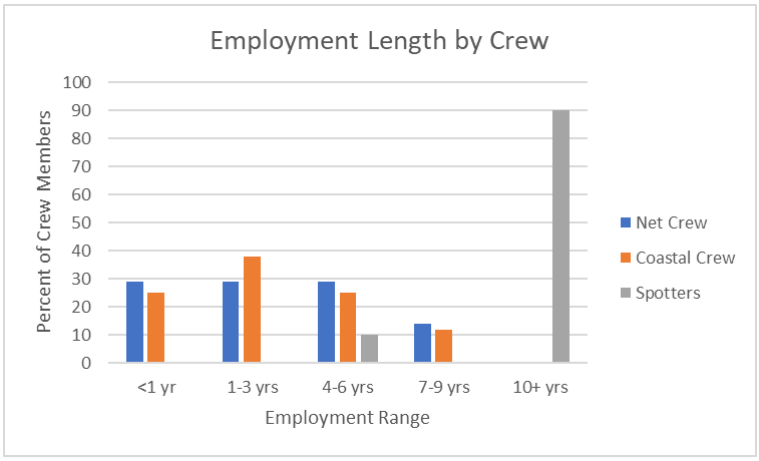


Figure 6: Employment Length

Income Responsibility Data

Although there is a clear imbalance in employee sex, this is not mirrored in the financial responsibility of the workforce. Across all three teams, 44% of the employees are the main income source for their household with the remainder sharing the income responsibilities with others in the household (Fig. 7). The female employees were split very evenly between sole income source and shared contribution to household income.

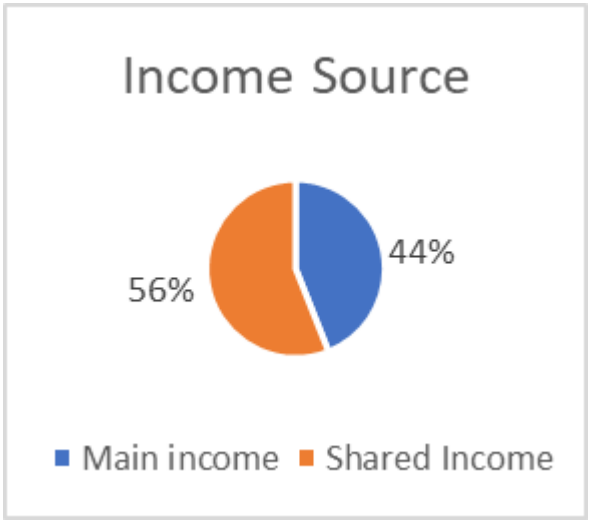


Figure 7: Income Responsibility

Although a greater percentage of employees lived in households with multiple income sources, almost all employees' income was required to sustain the household expenses. Only 8% employees lived in households where the parents were able to sustain the household on their income alone. These employees still had financial responsibilities to their children and the childrens' mothers.

As can be seen, the vast majority of households had more than two people in it (Fig. 8). Of the two person households, one still had financial responsibilities to their children from previous relationships that lived with the other parent. This financial responsibility to others outside of the immediate household (sub residence) is also fairly common (Fig. 9). For the most part, the sub residences are inhabited by the parents of the interviewee or their partners.

I was unable to get reliable data about household expenses and did not ask for access to the employee's contracts and salaries, so it is difficult to make any comment about the financial stability of the employee households. Their common responses across several

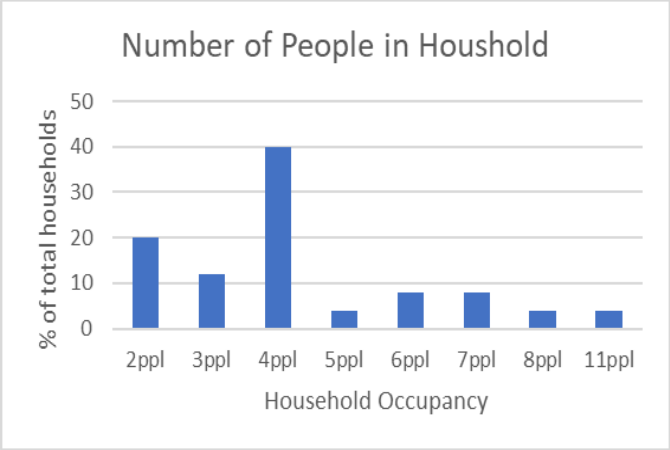


Figure 8: Prevalence of Household Sizes

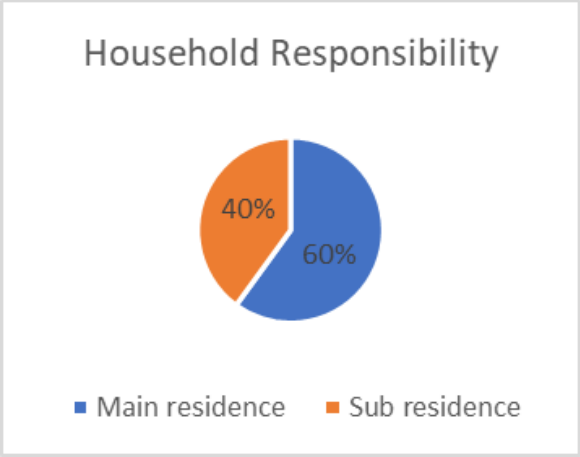


Figure 9: Percentage of employees responsible for more households than their own.

questions suggest that very little income is being saved by any of the employees. Most spoke as though they are living pay check to pay check, but it is unclear what concessions are being made on a daily or monthly basis to be able to afford everything.

Relationship Status and Children

Regardless of the employee age, almost all have long term partners (Fig. 10) and share children with those partners. The majority of the employees have at least one child 5 years or younger with multiple having more than one child which is partly represented in Figure 8. Several do not live with their partners (Fig. 11) though which seems to correlate to the age of the employee. Younger employees still live with their own families for the most part and give some of their income to their partner to support their children, even if their income is not necessarily required to support their own family household.

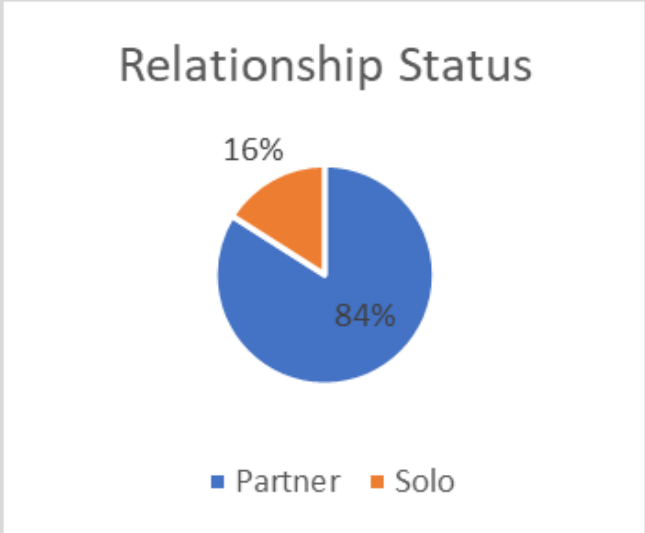


Figure 10: Percent of Employees who have a Partner

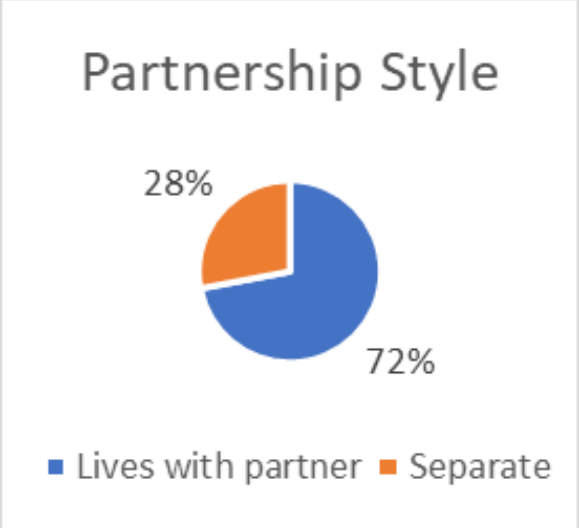


Figure 11: Percent of Employees who live with their Partner

Household Employment Data

When looking at the employment data of the households, I decided to break down the responses into two categories, being Regular Employment and Irregular Employment. Regular Employment was anything that had consistent weekly hours and a relatively stable monthly income that could be counted on and budgeted with. Irregular employment was any job where the hours worked were variable and the type of work varied based on what was available. Examples of irregular work would be day labour or hourly work that was sporadic and unreliable on a weekly basis like a part-time security guard or hairdresser. The majority of the households had two stable incomes (56%) regardless of the number or persons residing within the household (Fig. 12). Six of households also had someone who had irregular work, with one household having two irregular income streams. Those who worked irregular jobs did not also hold regular positions with anyone. Those who did not monetarily add to the household income generally provided child and home care, with a few reporting that those they lived with had a pension or welfare.

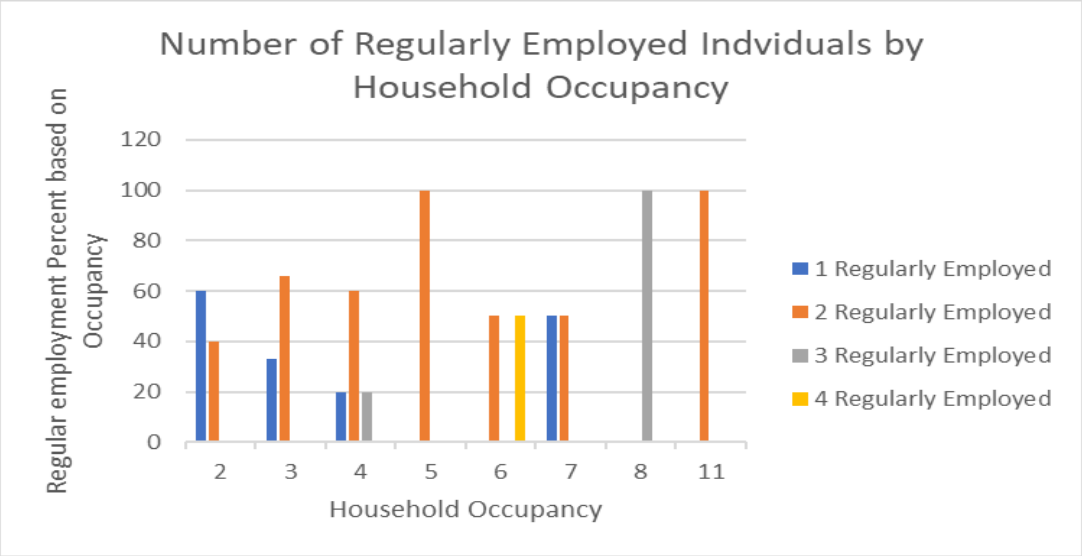


Figure 12: Number of Persons with regular Employment by Household Occupancy

Transportation

Transportation to and from work was most done through the use of the Shark Spotter bakkie, which would collect the employees from the Oceanview area (Fig. 13). Only one respondent had their own vehicle which was not tied to the Shark Spotter organisation in any way. This person did state that using and maintaining the car was often too expensive, so public transport was more commonly the main transportation source. Pretty much every interviewee stated they used minibus taxis as their main source of transportation along with either trains or buses depending on the destination and starting point. The questions about the average cost of transportation per month did not yield reliably useful data as the majority did not keep track of that accounting.

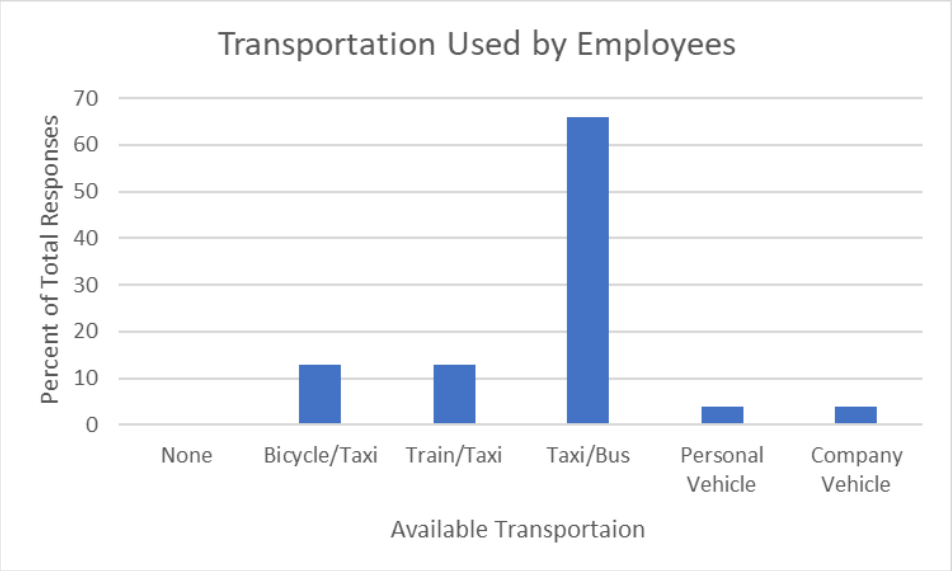


Figure 13: Employee Modes of Transportation

Study Group Data Compared to Community Data

The Ocean View community is included in the Fish Hoek municipality and Steenberg and Seawinds is included in the Muizenberg Municipality for data from STATSSA. Therefore, I used these two communities to compare Shark Spotters employees to the wider community to provide context on the living conditions in which the Shark Spotters resided.

In summary, from the study group, 50% of total households have 4 or more people living there, which is almost double the average household size for Fish Hoek (2.3) or Muizenberg (2.7) (STATSSA, 2011). Although the household density is higher among the Shark Spotters workforce than the surrounding averages, the household goods are slightly lower but still similar to the neighbouring households and communities. 92% of respondents stated they had access to running water piped directly into their dwelling which is only slightly lower than the Fish Hoek household statistics of 99.4% (STATSSA, 2011). 96% of employee households had access to electricity for lighting which is slightly lower than the Fish Hoek statistics of 99.6% (STATSSA, 2011)

84% of those interviewed stated they were in long-term relationships, only 38% of them were officially married. The Fish Hoek statistics state that 47.8% of people are married but was not clear if this only included legal marriages or if it also relationships that are practical marriage but was not officiated over (STATSSA, 2011), which means it is hard to pinpoint a clear reason for this discrepancy.

Although the Shark Spotter work force leans heavily towards men, the sex breakdown of Fish Hoek leans slightly female (54.3%), with 41.1% of households being headed by a woman. Unfortunately, there was no breakdown of employment levels between sexes for

the area so I could not analyse how Shark Spotters staff measured up against the greater Fish Hoek community.

Other items suggested lower socio-economic status than the wider Fish Hoek community, for example internet access (28% versus 57.4%) and owning a personal vehicle (8% versus 88.5%) were much lower than the surrounding community. However, cell phone use was slightly higher, but similar to the community ownership (100% versus 93%)

As of 2011, Fish Hoek was 82.2% white, 9.7% Black African, and 5.1% coloured (STATSSA, 2011). This does not resemble the study group at all however, which was predominantly people from the Coloured community and a minority of people from the Black African community. No white people work in field positions.

Table 2: Comparison between Shark Spotter Employees and Fish Hoek Community

	Shark Spotters	Fish Hoek
Average Household Size	4	2.3
Access to Running Water	92%	99.4%
Electrical Lighting	96%	99.6%
Married	38%	47.8%
Lives with Partner	72%	53.2%
Gender M/F	92%/8%	45.7%/54.3%
Internet Access at Home	28%	57.4%
Cell phones	100%	93%
Personal Vehicle	8%	88.5%

Qualitative Findings

The main body of data that was being collected was of an applied qualitative nature that looked to understand the skill development that the employees have gotten through the Shark Spotter organisation and how those skills have transferred to the residential communities (Objectives 2 and 3). In addition to the focus on themes related to the study objective, other emerging themes were also considered. Text Box 1 outlines the themes that emerged from the data in examining these questions. Description for each theme is outlined in the following sections.

Text Box 1: Qualitative Themes

QUALITATIVE THEMES BY OBJECTIVE

OBJECTIVE 2: SKILLS DEVELOPMENT

- SKILLS DEVELOPED WITH SHARK SPOTTERS
- SKILLS DEVELOPED PRIOR TO SHARK SPOTTERS
- RECRUITMENT PROCESS
- LIMITATIONS TO EMPLOYMENT
- AVAILABILITY OF TRAINING
- EMPLOYEE INTEREST IN TRAINING

OBJECTIVE 3: SKILLS TRANSFER OR BENEFITS TO THE COMMUNITY

- USE OF SKILLS IN THE COMMUNITY
- SKILL APPLICATION IN INFORMAL ECONOMY
- SKILL APPLICATION FOR COMMUNITY HEALTH

EMERGING THEME: RELATIONSHIPS WITHIN SHARK SPOTTERS

- RELATIONSHIPS BETWEEN EMPLOYEES
- RELATIONSHIPS BETWEEN EMPLOYEES AND MANAGEMENT
- RELATIONSHIPS BETWEEN EMPLOYEES AND BEACH GOERS

Objective 2: Skills Development

Theme: Skills Developed with Shark Spotters

By and large many of the employees of the different teams found that they had developed more skills through their work with Shark Spotters than they had at any individual education or employment opportunity in their past.

"I actually learn most of the stuff I know now, I mostly learn it through Shark Spotters"

[Interview #5]

"Yes, I get more skills when I start here with Shark Spotters, because before I was [doing] nothing"

[Employee # 10]

Theme: Skills Developed prior to Shark Spotters

Limited skill development was described prior to working for Shark Spotters. This is partially due to the young nature of their staff, many of whom were not in stable employment before Shark Spotters. Another factor is the nature of the work. Many who did develop skills before joining the Shark Spotter organisation did so in construction, farming, and other manual trades.

"Working with pavements and stuff, the skill there also. A little bit skill, but not so much carpenter, and I know a little bit of plumbing… No there was someone else I be working before Shark Spotters…My real skill is my dad teach me plastering and my father-in-law building."

[Employee #11]

"Before I was here, I was actually with the fishermen also catching fish in Simons Town, but I know I did swim and can swim whatsoever, but they take me to a pool where I cannot stand to see if I can swim or if I panic or whatever…"

[Employee #13]

Theme: Transferable Skills

When joining Shark Spotters, they did not find that prior skills transferred, other than those who had landscaping training. This suggests that the unique nature of the work with Shark Spotters does not lend itself to widespread skill knowledge and that most new employees will need to go through the full spread of skill training before being able to competently complete all aspects of their job.

Theme: Recruitment Process

This lack of previous applicable experience might also be a result of the recruitment process Shark Spotters uses to fill vacancies. When asked how the employees heard about the position they are now in, many said they were first introduced to the Shark Spotter organisation through word of mouth or from direct involvement on the beach during previous work.

"I heard about Shark Spotters obviously coming to the beach and that's how we knew there was Shark Spotters on the beach because of the sirens…the way I found out about the position was the lady you just talked to, [name], so she's a friend of my sister and she told my sister that they are doing interviews."

[Employee #25]

Although all were aware that vacancies within Shark Spotter are advertised on social media, none of the current employees that were questioned found out about the position they ended up filling through that medium. Although the employment strategy is targeted at low-income communities, where there could be a limited range of skill development opportunities, there are few options available to employ people from a greater geographic range.

Theme: Limitation to Employment

The greatest limitation to join Shark Spotters appears to be transportation. Shark Spotters offers transportation to those from the Oceanview community as that is where the majority of their employees live, but those from the Muizenberg area or farther are responsible for their own transportation. Almost all of the employees do not have personal vehicles, and those who do own a vehicle cannot afford to drive it regularly.

"I do have my own transport but I'm going to be honest when I say that times are tough so there's days, I use my car and there will be days I use public transport cause its far cheaper…6-day cycle I'll come to work with my car twice… the other four days I will use the train."

[Employee #18]

Theme: Availability of Training

For those who are able to join the organisation, they have to undergo training relating to their team's role. Across all the teams' new employees are taught how to swim comfortably, basic first aid, how to splice rope to fix the shark exclusion net, general landscaping, and basic ecological knowledge about the coastal environment. Much of this

training is not absolutely required to perform the necessary duties so the spread in who has gone through which training or who needs updates for specific training, like first aid, is varied. From interview responses it also would appear that getting the different types of training needs to be self-motivated. From the interviews, most knew what training was coming up but were responsible for getting themselves into the training by approaching management.

"Well, the first aid yes, splicing no, but I got to get to… [name]he taught me the ropes and …[name] taught me the splicing… I can do the splicing better than the guys that were there because some never took note of what was going on."

[Employee #6]

"In the Shark Spotter, yes you can grow, but it depends on YOU in the day."

[Employee #12]

"Well, if you open your mouth, it could be available for you as well"

[Employee #14]

Theme: Employee Training Interests

Among the three crews, many of the respondents showed an interest in gaining more environmental knowledge so they could better educate and communicate with the beach communities they supported or assist with local research efforts.

"Basically, there is a lot like things I didn't know sometimes the water and the red tide... There is a lot of knowledge…I could do a bit more. Maybe go study maybe to go marine biology so I can work there…"

[Employee #23]

Objective 3: Skills transfer or benefits to the community

Theme: Use of skills in the Community

Although Shark Spotters trains their employees in skills that could hypothetically be used to improve the wellbeing of the community or individuals, this reality does not seem to materialise. In the initial discussions about this study with Shark Spotters it was believed that certain skills could be taken back to the employee's communities to help create extra revenue streams for the individual households or help uplift the quality of life in the community. It was believed that the rope skills and landscaping knowledge that are developed could be used for monetary gain by offering those skills to the local small-scale fishermen when they need their nets repaired, or neighbours who want the area around their dwelling or nearby parks tended to. The first aid skills were seen as a way of getting medical knowledge into communities that have limited access to medical expertise.

Theme: Skill Application within the Informal Economy

All employees who said they were open to offering their rope work or landscaping skills to people within their community said they would do so but not for pay. They said they would only charge those who were not from their community.

"I will do that for my community no charge."

[Employee #12]

The responses that echoed this statement suggested that the sense of community in these areas outweighed a desire for financial gain. This might mean that for any of these skills to be used for extra income some kind of system will need to be implemented to help bring in business from outside the communities.

Theme: Skill Application for Community Health

As for skills that can lend to quality-of-life improvements, there was a clear sense that a lack in safety restricts those actions. When asked if anyone would be willing to offer their first aid knowledge to their neighbours, most said they would only help those within their family network. There was a sense that this position was taken to avoid any interactions with the more violent and gang related members of their community.

"To tell you the truth, I live in an area the less you see the better, you know. So, once I go in, I close my gate…"

[Employee #4]

"It's a nuisance because it's gonna always be you. In all those occasions"

[Employee #6]

This sentiment was echoed in various interviews with some stating that if they were to publicise their first aid knowledge their home might become inundated with people looking for free medical attention. Considering the threat of violence with a deadly weapon is very real and has already taken a life from a colleague and friend, this reasoning for keeping that knowledge strictly within the family is understandable.

Emerging Theme: Relationships within Shark Spotters

Theme: Relationship between Employees

As for the employees' comfort with their coworkers and management, the response was almost consistently one of mutual respect and comfort.

“My thing actually is, I’m not keeping it [knowledge] for myself. I also try to learn the next one and I will like he to do the same passing it on”

[Employee #5]

“Yes, they like a family to me…because they will always give advice, so if I have problems at home or somewhere I can talk to them, and they will give me advice...everyone helps each other.”

[Employee #3]

Theme: Relationship between Employees and Management

There was a sense that those in management appreciated the work they provided on a day-to-day basis and were open to being approached with requests or suggestions.

“Yeah, she [CEO] is like that, she would be [welcoming]”

[Employee #23]

This open dialogue the employees felt they could have with superiors lends itself well to expanding skills in the workforce as respondents showed a sense of industriousness towards gaining new skills. Although the expectation that the skills developed would transfer back to the employee community did not fully materialise, some of the information gained did create further interest.

Theme: Relationship between Employees and Beach Patrons

As was noticed when assisting with field work and confirmed in the interviews, there is a regular occurrence of people on the beach approaching the Shark Spotters staff to have conversations. Many stated they were either unbothered or enjoyed those interactions as the majority are approached with honest curiosity or appreciation.

"Yes, yes, I do, but sometime there are people who are a bit difficult, but it's part of your work to help them and try to get them understand and that's what we all do."

[Employee #23]

"You must understand lots of people, I mean even local South Africans, maybe from Gordons Bay that don't actually know what is happening here…they come across this...they curious you understand. So, they come and come ask…"

[Employee #20]

There is clear camaraderie between those whole work together within a team. This seems to create a supportive community within the organisation, which was exemplified by the assistance given to the household of the slain coworker. This sense of community exists within employees' residential areas, but the levels of violent crime within those communities seems to restrict the forms of assistance people are willing to offer. Across the different skills the employees can get training in (first aid, rope work, landscaping), very few were able to transfer to the residential communities. There is clear hesitation about publicising first aid knowledge so to avoid interacting with the more violent groups within their area. The rope work that was intended to useful to the small-scale fishermen when they needed nets repaired did not materialise as the fishing community already had people who could repair nets. Although the interviewees stated they would be willing to use the landscaping skills for the betterment of their community, they also clarified that they would not expect it to be an extra revenue stream as they understand that their neighbours were working with limited budgets.

CHAPTER 5: Discussion

Household Dynamics

As reported in the data, each of the staff members of the Shark Spotter organisation that were interviewed are responsible for supporting at least one person other than themselves. Even those who shared income responsibilities with others in the house could not afford to stop providing some of their income to a household's expenses. Those that were not responsible for the expenses within the house they lived still had financial obligations to their children and partner. Many of the respondents who shared income responsibilities with someone else in their household still provided a greater portion to the total income. This is largely why those who are not sole providers still need to continue working to support their household. Those who are not providing the greatest portion to the household income generally have some financial responsibility to cover specific expenses, like water or electricity, pay rent to their family members, or help support their child living under a different roof. This necessity for multiple income streams might partially be due to the average number of people per household.

The discrepancy seen between the Shark Spotter employees' access to water and electricity versus the greater Fish Hoek area is likely a result of the study group coming from Ocean View, which is one of the least affluent areas within Fish Hoek. Greater Fish Hoek was the smallest aggregate census area available. Since the STATSSA website did not have any census data specifically for Ocean View it was likely included in the greater Fish Hoek area data. Due to the fact that the study subjects are fairly concentrated in where they live, their average household income is not reflected in the average

household income of the entire Fish Hoek area. This asymmetry between the study subjects and the Fish Hoek community as a whole is no more apparent than when looking at the population demographics. The study group was predominantly people from the Coloured community and a minority of people from the Black African community. No White people work in field positions. This differed substantially from the overall racial makeup of Fish Hoek which is predominately white (STATSSA, 2011).

The household occupancy number does not include sub-residences either, which some employees also have a partial financial responsibility towards. Often these “sub-residence” were the homes of parents, in-laws, or adult children. One of the households that was taken care of by non-blood relations was that of the murdered employee.

For most of the staff who had some responsibility for a second residence, the assistance provided was financial. This financial assistance was not the sole income for those households however, as there was usually one at least one person receiving a wage, welfare, or pension. The income provided by the interviewees were to help cover any extra expenses that the permanent residences income could not accommodate. This inconsistent need meant that there was no reliable information on the percentage of the Shark Spotters employees wage that was taken up by the sub-residence. Although requests for extra funds were regularly made to the staff, the value that was needed fluctuated heavily based on monthly utility costs and how much those households could make from informal employment. Those who were helping parents and in-laws usually share that responsibility with their partner, so that both are contributing to that financial assistance. Finding specific values for any expenses was inconsistent among the responses. This is partially due to the nature of how the household incomes were pooled,

that some households followed more rigid household roles where the one not working was responsible for using the income to buy groceries and pay for expenses.

Restrictions to Community Involvement

When looking at the residential areas where the employees live, these areas all have high incidents of violent criminal activity. Khayelitsha and Steenberg placed in the top 30 stations with attempted murders in the country in 2021, and Khayelitsha and the area of Philippi, which neighbours Grassy Park, placed in the top 30 stations across the country with the highest number of Trio Crimes (carjacking, residential robbery, and non-residential robbery) reported (SAPS Crime Statistics).

This prevalence of crime is experienced first-hand by many of the employees. During the study time a member of the net crew employees was tragically killed in a gun related crime. When interviewing the deceased's coworkers there was a common sense of tragedy around the incident but there did not seem to be a great level of surprise over the nature of the killing. They did not seem to view assaults with a deadly weapon as out of the ordinary for their community. This being said, there was a clear reservation about discussing these darker aspects of the employees' communities. Although no one denied that there were serious levels of violent crime in their community, very few would talk openly about specific instances they had witnessed. The most specific example was given by one interviewee who reported providing medical care to a someone in their neighbourhood with a wound from a deadly weapon. This however was unique feedback, with many others only stating a fear of providing medical assistance to injured persons in their community for fear of retaliation.

Skills Development

Skills like net repairs and landscaping are potential revenue streams in the context of a small-scale fishing community that regularly needs nets fixed, or private yards that need tending to. There is also the potential for community upliftment, as the landscaping knowledge can be used to help clear playgrounds and the rope work could be used to fix up soccer goals or cricket nets. There can be social benefits to the training, as first aid can be vital for those who otherwise lack access to medical services or quick transit to medical facilities.

Although this skill development offers the potential to transfer over to the residential communities, the reality does not always allow for that. The dangers present in these neighbourhoods, whether that be general crime or gang related incidents, limits the law-abiding citizens from making some of their skills known to the public. There can be fear of retaliation if medical assistance is offered to a gang member even unknowingly. The lack of basic civil services can also be a limiting factor as those who can offer their skills do not want to be inundated or taken advantage of by those in need.

Potential for Community Support

The initial expectation that first aid training would be a valuable skill for the Shark Spotter staff to have and take back to their communities was shown to only have limited use. Although all respondents stated that they would use their knowledge to help anyone in their family, there were mixed reactions about how far that assistance would be extended. With the threat of violence being so high in many of the neighbourhoods the staff live in, there was a reservation among some to get involved in any way with those activities. For

a portion of the responses this seemed to come out of a sense of self preservation, as there was a fear that providing help to a person might make them be considered compatriot to that person and therefore potentially a target for future retribution. Others viewed it as more of a potential to cause a nuisance, believing that if it became widespread knowledge that they were providing free medical assistance their home would become a hotspot for people looking to have every small ailment looked at. This hesitation to help was not universal across the responses though. Some shared with enthusiasm that they would be willing to assist anyone in need they came across and previous interactions they'd had with a stranger who needed help. Interestingly, almost none of those stories involved people from around their neighbourhood but rather people they had passed when travelling.

With the level of violence being so high in many of the staff neighbourhoods, as can be seen by the SAPS stats and quotes from the interviews, trying to create a greater pool of medical knowledge within these communities could clearly be beneficial. It would seem from the interviews that the greatest limitation faced by those with the knowledge assisting those in need is the lack of security the provider has during those situations and after.

Unlike first aid, landscaping was a skill that employees showed more of a willingness to use for community improvement. The expectation from Shark Spotter management was that by providing their employees the opportunity to gain landscaping skills, an extra revenue source would also become available through working on neighbours' households or cleaning up and improving public spaces. Although the was a willingness to provide these services, some of those who had the training said they likely would not expect payment for such services. From the responses there seemed to be an understanding

that many from the community faced similar financial difficulties that would not allow added expenses that fix mostly cosmetic issues. Although this mindset was not ubiquitous across all respondents, it did seem to be held by the majority.

An aspect of community support that did seem to be capitalised on was the spreading of news about available work. Almost all respondents stated that they became aware of job opportunities in Shark Spotters through family or friends who already interacted with the organisation. Almost all interviewees also stated that if work was made available, they would tell people they knew who were looking for work and could be trusted to stay consistent with their attendance and input. This further suggests that there is a sense of common struggle within the employees' communities to find stable employment and sufficiently provide for their dependents.

The support given to the slain staff member's household further adds support to the claims that the work environment at Shark Spotters more closely resembles a family rather than strictly professional coworkers. This sentiment was not shared across all employees though. There was a greater sense of isolation from their coworkers among the spotting staff. This is likely due to the more solitary nature of the work, compared to the net crew or coastal rehabilitation team that work and function as a group. As the role of the spotters is more solitary, there was an expressed difference in how spotters interacted after business hours versus the net crew. As the net crew worked as a team and remained on the beach together for the entire day, the friendships within that group were stronger and would often carry over outside of business hours. This was not necessarily the case for the spotters. Although some did still have colleagues they considered personal friends, this sentiment was not ubiquitous. The residential area of the spotter could have factored

into their sense of place within the shark spotter working community, but there was not enough variation in the spotters' residential areas to make any confident statements.

The familial nature of some of the working groups, like the net crew, would likely also extend back to the residential communities as many employees live in the same neighbourhoods. Some employees even stated that they would occasionally get together after work or on days off to enjoy a drink or just be social. This was not universal across all employees though, as those who were employed as spotters stated that they had a less personal relationship with their coworkers. Some stated if a coworker was facing hardships, help would be extended in the form of advice, company, or household assistance. An example of this would be those that started helping out around the house of the deceased coworker to lessen the burden on the widow and children.

Informal Employment

Another expectation was that the training in splicing and rope repair could help create extra revenue streams for the staff that were independent of their employment. As discussed by Smit and Musango (2015) and defined by the International Labour Organisation the informal economy is any "economic activities by workers and economic units that are -in law or in practice- not covered or insufficiently covered by formal arrangements." Smit and Musango argue that by engaging with already established informal economies, the green economy can more successfully promote social equitability. Chen (2012) suggests that informal employment is a growing reality in the global economy and is a main source of income for most people in the developing world. With the position the informal economy holds in developing countries, Dawa and Kinyanjui

(2012) state that the informal economy is a vital part of the social, economic, and political arena in Africa. With all this in mind it was argued that the informal economy should be considered and included into any economic planning (Chambwera et al., 2011; Chen, 2012; Dawa and Kinyanjui, 2012), including the green economy. Examples of this informal sector which relate to this study would be the small-scale fishing that operates in the area. One such boat launches from Fish Hoek beach, which Shark Spotters protects, and some of the net crew that work there had previous ties to those fishermen and continued to have friendly interactions with them.

Initial thoughts would be that teaching the Shark Spotter staff how to make and fix nets would benefit the business as all repair work on the exclusion net could be done in house while also benefiting the staff who live in communities with a lot of small-scale net fishing. The hope would be that the already established business of small-scale fishing would welcome more people with useful skills and the staff could benefit by getting extra income through offering their services. This was also not fully realised. When questioned about whether any had been able to find demand for their services, there seemed to be a response that it either wasn't a serious option or wasn't something that had been considered. Potential explanation would be that within each fishing crew at least one person is able to repair the net, or there is already a trusted network of repair people that cannot be encroached on. It was unclear though why some of the staff seemed to be surprised at the suggestion, but that response might be explained by the discussion around landscaping, which is another skill that Shark Spotters train some of their employees in.

During my discussions with the staff who had received this training, there was a sense that the community's success sometimes outweighed personal interest. Those with landscaping training were asked if they would offer those services to their neighbours to prune areas around the houses, clean up the vegetation in adjacent parks, or even work on private property. The vast majority said they would have no problem doing that for their neighbours, while several stated they would happily do so but not for money as they understand everyone is limited in their budget.

Another potential limitation could be the lack of personal transportation among the staff. When not including the staff that kept the work vehicles at their house, almost no one had their own vehicle and those who did could not afford to drive them consistently. As respondents spoke about their concerns on the dangers in their neighbourhood and their desire to remain safely in their homes, travelling by foot to engage in informal employment could be seen as not worth the risk, especially in the evening after work.

Opening up green jobs to those trained in the informal sector

Shark Spotters shows that much of the training and education needed to work in some small-scale green jobs can be done as part of the employment. The skills required of the Shark Spotters staff is somewhat unique to the job, like rope splicing, spotting, or basic first aid. Since the hiring process is focused on people coming from disadvantaged communities, there is a need to train and educate the new hires. Since some of the knowledge provides certifications that can expire, there is a need for regular skill and educational updates for new and old staff. This suggests that Certification by Experience (CBE) is a valid avenue to building a workforce.

Shark Spotters has shown the potential to satisfy the three elements suggested by Grisworld (2012) which could help build a more sustainable society. This suggests a positive impact employees can have beyond their residential communities. By educating their employees about the coastal ecology and the ecosystem that is being protected, this knowledge can spread through the regular interactions between beach goers and Shark Spotter staff. By increasing the amount of ecology knowledge available to their staff Shark Spotters could also expand the pool of scientifically capable persons able to engage and assist research. Employees of Shark Spotters also receive landscaping training and are taught how to identify invasive species for maintaining coastal habits.

Expectation versus Reality

This mismatch in the expectation versus reality of skill development with the Shark Spotters could partially be attributed to the unseen barriers such as safety or transportation but could also represent cultural differences in approach towards personal economic stability versus community support between the investigator and the Shark Spotter staff. From my discussions with the staff about the training they have undergone and what training they would still like to complete; most were interested in expanding their body of environmental knowledge to assist with research or provide better outreach and education. There is an aspect of professional upliftment and increasing the amount of work that can be capitalised on in this approach, but it does not follow the expected route of collecting marketable skills to gather business from among the residents of the community. This might suggest that the mindset of those approaching the available training is different to the mindset of those offering the training.

Limitations

Although participation in the study was stated to be optional, no Shark Spotter employee refused to participate. This could represent a directive from the management to take part regardless of comfort. If that was the case, then the answers given by those who would have otherwise declined could be invalid. The pressure to engage with the interview could have been accompanied by a coaching of the employee's responses about the organisation. I did not find any evidence that this occurred as many answers were counter to those potentially expected by management.

The first language for the large majority of respondents is Afrikaans, which I am not fluent in. Since the interview answers were meant to be anonymous, this restricted my ability to have a translator in the room with me to clear up any misunderstandings. Although all the employees could speak English fluently enough to participate in the study, there were a couple occasions where the interviewee expressed an uncertainty on how to phrase a response clearly in English. Although I do not believe there were any serious miscommunications between myself and the study subjects, there is the potential for responses to be oversimplified when expressed in English.

Since I was not able to gain access myself with the communities the Shark Spotter employees lived in, there was no way to reliably verify the data I was receiving in the interviews. I was also unable to engage with the informal markets of their neighbourhoods to determine with certainty why some skills that could have provided alternative revenue streams were not able to be capitalised on.

Reflexivity

The qualitative theme of “Employee Training Interests” showed a potential divergence between the expectations of myself with the Shark Spotter management and the study subjects. My expectations about what skills the Shark Spotter employees would like to gain were mainly focused on marketable skills that could be used to generate extra revenue sources through individual business practices. These expectations were aligned and partially informed by the Shark Spotter management who discussed in our first meeting the potential for net repair training and landscaping skills to be used within their employee’s residential neighbourhoods. This expectation was challenged when several respondents stated they were interested in gaining environmental knowledge to participate more in research efforts happening on nearby coasts and help educate the public that approached them on the beach. This desire for more education could also be due to lower education levels among the employees than myself or the Shark Spotter management. Several employees stated they did not remain in school through matric. The reasons for leaving school early varied from familial pressures to help provide for the household to a lack of interest in the education material.

There was also a desire to gain skills that could then be used to gain employment in other fields. There was a desire from certain employees to gain a skipper’s license so they could be hired to operate small water vehicles, such as dive boats or basic research vessels. Another skill mentioned was drone piloting as there was a perception that a lot of work could be found as a drone operator for filming or survey purposes.

This divergence from my expectations could allude to a larger cultural difference. My family culture and education were mostly aligned with the individualistic principals that are commonly associated with Western philosophies. This meant that my expectations were rooted in an idea of individual gain rather than community strength and support. The idea that the interviewees would be interested in building a business that they had control over could also be symbolic of the privileges I was raised with. The socio-economic group I come from has more financial support which allows for interests to be pursued as careers. Jobs can be selected based on the nature of the work rather than the nature of what the work would provide. The desire from some of the employees to build skills that would increase the chances of employment could suggest that the driving factor behind employment decisions is towards achieving financial stability or increasing the potential for success of future generations. This mindset is more self-sacrificing where jobs are taken because work opportunities are limited and earning a stable income is a necessity at a younger age.

CHAPTER 6: Conclusions and Recommendations

Conclusion

This study was conducted with three guiding study objectives that looked at the household dynamics of the Shark Spotter employees, the skills the Shark Spotter employees have gained through their employment, and how those skills are able to be used outside of their work responsibilities. Below you will find each of the study objectives restated with results my investigation found that address each one.

Determine household dynamics of Shark Spotter employees, and how many people rely on Shark Spotter staff for a livelihood.

All of the employees interviewed shared their home with at least 1 person, with the majority having 4 or more people living under the same roof. Within these households not all the employees were the sole financial provide, but all interviewees had dependents that did require some financial contributions. Although many interviewees shared financial responsibilities with other people in their household, their contributions to the household income were still necessary to meet all the expenses. Those employees who were young enough to still be living with parents who held stable employment and could support the household expenses had children living at another residence that they were partially responsible for supporting financially. This situation of having a second residence that relied on the interviewees for support was not uncommon, with 40% of those interviewed stating they helped support extended family outside of their immediate household.

Determine which skills that employees gain from Shark Spotters are being used within their residential communities for monetary gain and/or community upliftment.

There is a clear disconnect between the Shark Spotter organisation's expectation and the lived reality of their employees. The organisation provides opportunities for their employees to gain knowledge and skills that they believe would benefit both the organisation's goals and the employee's livelihood and community. The three main skills that Shark Spotters thought their employees could use within their communities were rope work for fixing fishing nets, landscaping for community beautification, and first aid. Since Ocean View has an established small scale fishing community, there was a belief that being able to repair fishing nets would be a highly demanded skill that could provide a secondary income after working hours.

The interviewees with any of these skills did state that they were willing to offer their knowledge to their neighbours, but for various reasons were restricted in their ability to do so. Skills like landscaping, which Shark Spotters thought could be used as a secondary income source for their employees was not capitalised on by employees.

Determine why some skills might not be able to be used effectively outside of the work environment.

The most commonly stated reason for employees not being willing to offer first aid to people in their community centred around the gang culture that was present, and the levels of violent crime committed. There is a sense that by publicising their first aid

knowledge, employees could unwittingly become targets of gang retaliation if assistance is given to someone injured in gang related incident.

Working with the small-scale fishing community that operated from their community was not hindered by any direct threats of violence but was not able to be capitalised on. This was due to the closed nature of the small scall fishermen who already had their people who fixed any broken nets for them. Although there is obviously a potential for the Shark Spotter employees to build relationships with these fishermen as some had previously operated on some of the boats, doing so would likely take more time than they have available. There is also the potential that expanding into this business market could result in some form of conflict as those who were already established as the net repair people began to lose or share their business.

There are clearly many societal factors that inhibit the use of skills like first aid or network. The difficulty for Shark Spotters is that the roadblocks, like crime, to getting the intended skills into the residential communities are greater and more nuanced than the Shark Spotters can feasibly address. Considering the violence and substance abuse in these communities stems partly from decade old actions of a repressive government, any attempts at improving the living conditions enough to reduce the prevalence of violence and abuse would likely require multifaceted approaches that are heavily integrated into the communities being worked with. The employment Shark Spotters offers within areas like Ocean View certainly help support the households and extended families of those employed but is not large enough to address the widespread unemployment in these areas.

Although there were no restrictions to the employees trained in landscaping from offering their skills to their neighbours, several stated that they would not do so with the expectation of financial compensation. The community dynamic, that is influenced by Ubuntu spirit that has reformed after the relocations under the Group Area Act, is geared more towards group benefits rather than an individual's betterment. This sense of community upliftment was prevalent in the Shark Spotter employees, as some stated they would offer their landscaping skills for free as it is understood that everyone in the community is struggling financially.

Although the skills being developed are used by the Shark Spotter employees in their official duties, much more community work needs to be done before there can be an easy transfer of those skills.

Programme Recommendations

The responses from the interviewees showed that Shark Spotters has cultivated a healthy work environment where most coworkers consider each other to be friends and feel that management is easy to approach with suggestions or concerns. There were very few areas that interviewees felt could use some adjustment.

The area I would first recommend looking into is the amount of environmental educational programs that the employees can participate in. There was a clear and common interest from multiple people across each of the three groups to increase their understanding of ecological process and interactions. Creating these sorts of educational opportunities could be beneficial to both organisation and individual. By increasing this body of knowledge amongst its workforce, Shark Spotters would likely see an increase in the

number of employees who are able to assist with educational outreach initiatives. Since there were responses from some of the employees that they would enjoy participating in such outreach efforts, the number and types of outreach efforts could expand.

If this environmental education is coupled with research skills, there is also a potential market for the Shark Spotters organisation to help support local research studies. There was an expressed interest in gaining research skills for practical use among the interviewees. If Shark Spotters decided to provide opportunities to their employees to gain these skills, I would also recommend they ensure they are responsible for the introductions between the employees and researchers. This would potentially limit and loss to the workforce that might occur if employees are expected to find research opportunities on their own. By providing the training and creating the avenues for the practical use of the training, the increasingly skilled workforce will remain affiliated with Shark Spotters and can be managed in a way to ensure that research studies are assisted without having a detrimental effect on the ability to staff the beaches.

There were some skills that employees showed interest in that would only have a measurable benefit to the individual though. Certifications in piloting drones or being a skipper could lead to employees finding better employment elsewhere. Although there are arguments that those skills could be used for the benefit of Shark Spotters, the instances of use would be too specific and infrequent. There was a suggestion that by teaching spotters how to use drones, a fleet of drones could be used to better survey they water and identify animals in the water. This would obviously require a large amount of capital though to be used to purchase drones that are of a high enough quality to actually be useful. Accidents with these drones would likely also be expensive as the drones would

have to fly over water, meaning any unintentional grounding would result in a complete loss of the drone and further financial input to replace the lost equipment.

An argument can be made that increasing the number of skippers in the Net Crew would increase the ability of the group to perform their duties regardless of any absenteeism. Although this sounds beneficial to the group as a whole, I believe there would be clear diminishing returns after a certain number of people in the group all hold their skipper's license. Since there is only one boat to use, more people with a skipper's license might create an atmosphere where those who have the certification would rather look for steady work piloting boats than share that responsibility amongst the other team members.

Increasing the skill base of a workforce for advancement beyond employment with the Shark Spotters could be beneficial to the community however, if there is a large enough body of people looking for employment with the organisation. If career advancement is part of Shark Spotter's strategy, then providing more opportunities to gain licenses in skippering and drone piloting could be beneficial to their employees' employment opportunities.

Research Recommendations

If looking to expand on the knowledge presented in this paper, there are several recommendations to be made based on limitations or restrictions in the information gathered.

If future research efforts wanted to look with greater emphasis on the economic demands of the Shark Spotter staff, I would recommend asking the Shark Spotter organisation for

access to the payrolls to see how much the employees make biweekly, as that is how regularly they are paid, and monthly, as that is when the total expenses can be calculated. Getting specific values for the household expenses was not possible through the interviews I conducted, so to do an economic study like this a system would have to be created for regular and accurate recording of each employees spending habits. Since several employees also shared financial responsibility with others in their household, follow up interviews would need to be conducted to determine the relative contributions each income earning household member makes to determine the degree of financial burden that is carried by the Shark Spotter staff. This could be hampered by a lack of regular, formal employment though as some household members do not hold regular jobs but work on an ad hoc basis. As can be seen in the results, multiple employees also gave financial aid to a second residence that they were affiliated with through familial connections. From the interviews, these households did not necessarily require financial aid in consistent amounts. The amount of money sent was dependent on the relationship between what the secondary household was able to earn in a month and what that month's expenses totalled to. This made the financial accounting for these relationships difficult to pin down and would require much more consideration on how to standardise the values for effective comparison and analysis.

A common theme that arose in the interviews was that of crime and how it hindered the employee’s ability to provide certain skills and knowledge to their community. A study could be done to better understand that dynamic and form potential strategies. Pursuing this line of research would require direct contact with the wider community to specify the types of crime that present the greatest threat to community involvement and hear

suggestions from those directly impacted on possible paths forwards. Solving the issue of widespread criminal activity is obviously a highly complex problem that is driven by too many factors for any single organisation to address. This would mean that if this study were to be conducted with the Shark Spotter organisation, a partnership or partnerships would need to be formed with other groups and actors working within these communities. Finding the right groups to partner with could help get a more holistic understanding of the key driving factors and create a multi-faceted approach to increasing the level of involvement among the community members which in turn would help allow the Shark Spotter employees to start offering their skills and knowledge too.

To better understand how the Shark Spotter organisation is viewed in the communities it predominantly hires from, community interviews would be valuable. Since my results show that most new employees hear about positions through word of mouth there are likely narratives about the organisation within these communities. To discover what these narratives are, conducting interviews with the community in question along with the Shark Spotter staff a comparison could be made between how the organisation is viewed and how the organisation feels it present itself. This could also be expanded to include the coastal communities the Shark Spotter organisation works in. Interviewing stakeholders from the coastal communities could provide insight into how those who are protected by the shark spotter's efforts view their effectiveness and necessity. Interviewing a mix of business owners, casual beach goers, lifeguards and other water rescue group, and residents who have lived in areas since before Shark Spotters inception could give a well-rounded view on how the Shark Spotters presence impacts beach attendance and by extension nearby businesses.

References

Adams, K. R., Gibbs, L., Knott, N. A., Broad, A., Hing, M., Taylor, M. D., & Davis, A. R. (2020). Coexisting with sharks: a novel, socially acceptable and non-lethal shark mitigation approach. *Scientific reports*, *10*(1), 1-12.

Atteridge, A., & Strambo, C. (2020). *Seven principles to realize a just transition to a low-carbon economy*. Stockholm Environment Institute.

Borel-Saladin, J. M., & Turok, I. N. (2013). The impact of the green economy on jobs in South Africa: News & views. *South African Journal of Science*, *109*(9), 1-4.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Chambwera, M., Macgregor, J., & Baker, A. (2011). The informal economy. *A primer for development professionals on the importance of the informal economy in developing countries. London: IIED*.

Chen, M. A. (2012). The informal economy: Definitions, theories and policies.

Cochrane, L., & Chellan, W. (2017, May). “The Group Areas Act affected us all”: Apartheid and Socio-Religious Change in the Cape Town Muslim Community, South Africa. In *Oral History Forum d'histoire orale* (Vol. 37). Last accessed December 19, 2023

Consoli, D., Marin, G., Marzucchi, A., & Vona, F. (2016). Do green jobs differ from non-green jobs in terms of skills and human capital?. *Research Policy*, *45*(5), 1046-1060.

Dawa, F. O., & Kinyanjui, M. N. (2012). Green Economy and Sustainable Development: Which Way for the Informal Economy?.

Dean, N., Dong, G., Piekut, A. and Pryce, G. (2019), Frontiers in Residential Segregation: Understanding Neighbourhood Boundaries and Their Impacts. Tijds. voor econ. en Soc. Geog., 110: 271-288. https://doi.org/10.1111/tesg.12316

Du Toit, M., De Witte, H., Rothmann, S., & Van den Broeck, A. (2018). Unemployment experiences in context: A phenomenological study in two townships in South Africa. *Journal of Psychology in Africa*, *28*(2), 122-127.

Engelbrecht T, Kock A, Waries S, O’Riain MJ (2017) Shark Spotters: Successfully reducing spatial overlap between white sharks (*Carcharodon carcharias*) and

recreational water users in False Bay, South Africa. PLoS ONE 12(9): e0185335. https://doi.org/10.1371/journal.pone.0185335\

Georgeson, L., Maslin, M., and Poessinouw, M. (2017) The global green economy: a review of concepts, definitions, measurement methodologies and their interactions. *Geo: Geography and Environment*, 4:1, e00036, doi: 10.1002/geo2.36.

Griswold, W. (2013). Community education and green jobs: Acknowledging existing connection. *Adult Learning*, *24*(1), 30-36.

Google (n.d.) [Google map of Ocean View]

Google (n.d.) [Google map of Muizenberg]

Google (n.d.) [Google map of Khayelitsha]

Heffron, R. J. (2021). *Achieving a just transition to a low-carbon economy* (pp. 9-19). Cham, Switzerland: Palgrave Macmillan.

Jenkins, K. E., Sovacool, B. K., Błachowicz, A., & Lauer, A. (2020). Politicising the Just Transition: Linking global climate policy, Nationally Determined Contributions and targeted research agendas. *Geoforum*, *115*, 138-142.

Jobs, G. (2015). *Impacts of a Green Economy on Employment*. GIZ.

Johnson-Castle, P. (2021). *The Group Areas Act of 1950*. South African History Online. Retrieved November 30, 2023, from https://www.sahistory.org.za/article/group-areas-act-1950

Landman, K., & Napier, M. (2010). Waiting for a house or building your own? Reconsidering state provision, aided and unaided self-help in South Africa. Habitat International, 34(3), 299–305.

Legewie, J. & M. Schaeffer (2016), Contested Boundaries: Explaining Where Ethnoracial Diversity Provokes Neighborhood Conflict. *American Journal of Sociology* 122, pp. 125–161.

Living Hope. (n.d.) *Ocean View.* Retrieved November 30, 2023 from. https://www.livinghope.co.za/about/communities/ocean-view//

Loiseau, E., Saikku, L., Antikainen, R., Droste, N., Hansjürgens, B., Pitkänen, K., ... & Thomsen, M. (2016). Green economy and related concepts: An overview. *Journal of cleaner production*, *139*, 361-371.

Mahajan, S. (2014, August). *Economics of South African townships: Special focus on Diepsloot*. World Bank Studies. Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-0301-7

Mays, N., & Pope, C. (2000). Assessing quality in qualitative research. *Bmj*, *320*(7226), 50-52.

McCoy, A. P., O'Brien, P., Novak, V., & Cavell, M. (2012). Toward understanding roles for education and training in improving green jobs skills development. *International Journal of Construction Education and Research*, *8*(3), 186-203.

Merino-Saum, A., Clement, J., Wyss, R., & Baldi, M. G. (2020). Unpacking the Green Economy concept: A quantitative analysis of 140 definitions. *Journal of cleaner production*, *242*, 118339.

Neff, C. L., & Yang, J. Y. (2013). Shark bites and public attitudes: policy implications from the first before and after shark bite survey. *Marine Policy*, *38*, 545-547.

Nel, D. C., & Peschak, T. P. (2006, August). Finding a balance: White shark conservation and recreational safety in the inshore waters of Cape Town, South Africa. In *Proceedings of a specialist workshop. WWF South Africa Report Series–2006/Marine/001 Annexure* (Vol. 1).

Pearce, A., & Stilwell, F. (2008). 'Green-collar'jobs: employment impacts of climate change policies. *Journal of Australian Political Economy, The*, (62), 120-138.

Ross, F. (2009). *Raw life, new hope: Decency, housing and everyday life in a post-apartheid community*. UCT press.

SAPS Statistics (2021) *CRIME SITUATION IN THE REPUBLIC OF SOUTH AFRICA (JULY TO SEPTEMBER 2020_21)* Retrieved December 30, 2023 from https://www.saps.gov.za/services/july_to_september_2020_21_crime_situation.pdf

Sheridan, K., O'Riain, M. J., & Needham, M. D. (2021). Recreationist perceptions of lethal and non-lethal management of sharks in two of South Africa's marine areas. *Marine Policy*, *132*, 104633.

South African Statistical Quality Assessment Framework (SASQAF), (2010). *Operational Standards and Guidelines*. 1st ed. / Statistics South Africa – Pretoria: Statistics South Africa, v, p.87 ISBN 978-0-621-39104-6

Stanef-Puică, M. R., Badea, L., Șerban-Oprescu, G. L., Șerban-Oprescu, A. T., Frâncu, L. G., & Crețu, A. (2022). Green Jobs—A Literature Review. *International Journal of Environmental Research and Public Health*, *19*(13), 7998.

STATSSA (2011) *Statistics by Place / City of Cape Town / Fish Hoek* retrieved November 30, 2023 from https://www.statssa.gov.za/?page_id=4286&id=342

Stevis, D., & Felli, R. (2015). Global labour unions and just transition to a green economy. *International Environmental Agreements: Politics, Law and Economics*, *15*(1), 29–43. https://doi.org/10.1007/s10784-014-9266-1

Stilwell, F., & Primrose, D. (2010). Economic stimulus and restructuring: Infrastructure, green jobs and spatial impacts. *Urban policy and research*, *28*(1), 5-25.

Smit, S., & Musango, J. K. (2015). Towards connecting green economy with informal economy in South Africa: A review and way forward. *Ecological Economics*, *116*, 154-159.

United Nations Environment. (2011). *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World.* https://sustainabledevelopment.un.org/. Retrieved March 16, 2024, from https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=655&menu=1515

Wang, X., & Lo, K. (2021). Just transition: A conceptual review. In *Energy Research and Social Science* (Vol. 82). Elsevier Ltd. https://doi.org/10.1016/j.erss.2021.102291

Appendix

Survey Questions

Household Survey Questions:

1. How old are you (age in years at last birthday):

2. What Sex do you identify as:

3. What is your current Marital Status

    a. Married/ Long-term Partner
    b. Never married
    c. Divorced/separated
    d. Widower/widow

4. What is your Main Place of Residence (city, town, township, or tribal area)

    a. Sub-residence (suburb, village, informal settlement, section, or farm)

5. Relationship to main income source of household

    a. Main income source
    b. Husband/Wife/Partner
    c. Son/Daughter/Stepchild/Adopted Child
    d. Brother/Sister
    e. Father/Mother
    f. Grandparent/Great Grandparent
    g. Grandchild/Great Grandchild
    h. Other Relative (E.G. In-Laws or Aunt/Uncle)
    i. Non-Related Persons

6. Does your spouse or partner live in the household?

7. What is the total number of persons living in the household?

    a. Age range between oldest and youngest person
    b. Breakdown of relationships of persons in household
        i. Number of Children <=16
        ii. Number of Young Adults 17-24
        iii. Number of Adults 25-64
        iv. Number of pensioners 65+

8. Does anyone in the household attend an educational institution?

    a. If yes, how many people?
    b. What is an estimate of the tuition?

9. Does anyone else in the household have regular employment? (monthly or annual income)

    a. If yes, how many persons

10. Does anyone else in the household have irregular employment? (weekly or daily income)

    a. If yes, how many persons

11. How many people in the household contribute to the total income?

    a. Who provides the most? (if more than one income is similar please state such)

12. For those who do not contribute to total household income are you willing to state why?

    a. Scholar or student, prefers not to work
    b. Housewife/homemaker, prefers not to work
    c. Retired and prefers not to seek formal work
    d. Illness, invalid, disabled or unable to work (handicapped)
    e. Too young or too old to work
    f. Seasonal worker, e.g. fruit picker, wool-shearer
    g. Cannot find suitable work (salary, location of work or conditions not satisfactory)
    h. Contract worker, e.g. mine worker resting according to contract
    i. Recently retrenched
    j. Help unpaid in a family business

13. How do those who are in school or unemployed support themselves?

    a. Did odd job in past seven days
    b. Supported by person in household
    c. Supported by person outside household
    d. Supported by welfare, charity, church
    e. Unemployment insurance fund
    f. Savings previously earned
    g. Pension
    h. Other source

14. What is the type of dwelling for the main residence?

a. Dwelling/House Or Brick Structure On A Separate Stand Or Yard Or Farm
b. Traditional Dwelling/Hut/Structure Made Of Traditional Materials
c. Flat Or Apartment In A Block Of Flats
d. Town/Cluster/Semi-Detached House (Simplex, Duplex Or Triplex)
e. Unit In Retirement Village
f. Dwelling/House/Flat/Room In Backyard
g. Informal Dwelling/Shack In Backyard
h. Informal Dwelling/Shack Not In Backyard, E.G. In An Informal/Squatter Settlement Or On Farm
i. Room/Flatlet
j. Caravan/Tent
k. Other, Specify ……

15. What is your households' main source of water

a. Piped (Tap) Water In Dwelling On Site Or In Yard
    i. If from main, what is the estimated bill?
b. Other, Specify

16. What is your households' main source of electricity or power (tick all that apply)

a. Electricity From Mains
b. Electricity From Generator
c. Gas
d. Paraffin
e. Wood
f. Coal
g. Candles
h. Other, Specify ……..
i. None

16a. What Is Average estimate total electricity/power bill?

17. How much of household income is estimated to go to groceries?

18. Does the household have:

a. Television
b. Telephone
c. Cell phone
d. Internet
e. If yes how much is estimated bill for each?
    i. Television
    ii. Telephone
    iii. Cell phone
    iv. Internet

19. What means of transport are usually used by members of household?

a. Household/own motor vehicle (car, bakkie, van, station wagon, minibus)
    i. If a car is owned, what are the estimated bills?
b. Train
c. Bus
d. Minibus Taxi
e. Other, Specify

20. How long have you worked for the Shark Spotter organisation?

Qualitative Employee Discussion Guide/Survey Questions:

1. What is your role in the organisation? Please give a short description of what your duties are?

POSSIBLE PROBES:

a. How do you feel about your position in the organisation?
b. Do you enjoy working with the other employees?
c. What are your feelings towards the shark spotter organisation?

2. Have you been able to use any skills gained through this employment outside of work?

POSSIBLE PROBES:

a. If yes, please state what those skills are and how they are used
b. Have you learned more from shark spotters than other employment?
    i. If no, what employment have you learned the most from?

3. After your employment did you find your family or community relying on you to use any knowledge gathered from the shark spotter organisation?

POSSIBLE PROBES:

a. If yes, please state what those skills are and how they are used
b. Such as first aid, rope work, official documents and working with government officials

5. If shark spotters was hiring more employees would you suggest anyone in your household or community apply for the job

POSSIBLE PROBES:

a. Would you be pleased or disappointed to see your children enter into a similar line of work that you hold now?
    i. if yes, why would you be happy to see your children join you in a similar field?
    ii. if no, what kind of employment would you like your children to enter?

6. Do you interact with the coastal community?

POSSIBLE PROBES:

a. Do you interact with the members of the community beyond the official Shark Spotters relationship?
b. Have any social bridges formed between the Shark Spotter employees and the communities, e.g., meals or other support?
c. Does the community lend a hand or volunteer with the Shark Spotters in any way, e.g. school groups helping with beach clean-up?
d. Do you feel welcome in the community?

7. Are you currently looking for any other employment opportunities?

POSSIBLE PROBES:

a. If yes, can you tell me why you are looking for other employment opportunities?

<u>Added Survey Questions:</u>

1. Are the any skills you think would be useful that you do not have?
    a. Would those skills be usable at home?
2. How did you hear about this job?
    a. Why did you decide to apply?
3. Would you want more education opportunities through Shark Spotter?
4. What would make your work feel more worthwhile?
5. If you could transfer to another team would you?
    a. What team would you like to work with most?
6. Do you have an off-season job? (net crew specific)
    a. How do you cover your expenses in the off season?

Informed Consent Form

DEPARTMENT OF African Climate & Development Initiative
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Informed Voluntary Consent to Participate in Research Study

Project Title: Beyond the Economics: The Social Value of Shark Spotters

Invitation to participate, and benefits: You are invited to participate in a research study conducted with the employees and committee members of the Shark Spotters organisation. The study aim is to quantify the community size that is reliant on employment like yours and explore the skills gathered within the Shark Spotters workforce that are useful within your residential community. I believe that your experience would be a valuable source of information, and hope that by participating you may also gain useful knowledge.

Procedures: During this study, you will be asked to give your insight on how the skills you have attained through your employment with Shark Spotters has benefitted your community. What, if any, skills that you learnt for your work have you been able to utilise within your residential community. You will also be asked about your living situation and the number of people you are able to support in any way due to your employment.

Recording: We may audio record the interview as part of the study. These will be used ensure that your insights and contributions are accurately captured and reduce the chance of misunderstandings. The recordings with your voice will not be shared with anyone other than myself and will be deleted once the transcription is complete. If you object to this, please indicate below.

Risks: There are limited potentially harmful risks related to your participation in this study and we will make all efforts to protect confidentiality of your responses during reporting of study results.

Feedback: You will receive feedback about the results of this research from the Shark Spotters organisation once the study has been completed.

Disclaimer/Withdrawal: Your participation is completely voluntary; you may refuse to participate, and you may withdraw at any time without having to state a reason and without any prejudice or penalty against you. Should you choose to withdraw, I commit not to use any of the information you have provided without your signed consent. Note that I may also withdraw you from the study at any time.

Confidentiality: All information collected in this study will be kept private in that you will not be identified by name. Confidentiality will be maintained as your name will not be attached to the insights you provide.

What signing this form means: By signing this consent form, you agree to participate in this research study. The aim, procedures to be used, as well as the potential risks and benefits of your participation have been explained verbally to you in detail, using this form. Refusal to participate in or withdrawal from this study at any time will have no effect on you in any way.

You are free to contact me, to ask questions or request further information, at any time during this research.

I agree to participate in this research (tick one box) ☐ Yes ☐ No _____ (Initials)

I agree to be audio-recorded ☐ Yes ☐ No _____ (Initials)

_____	_____	_____
Name of Participant	Signature of Participant	Date

_____	_____	_____
Name of Researcher	Signature of Researcher	Date

For queries, contact the Faculty of Science Research Ethics Committee - Shanaaz Smith (shanaaz.smith@uct.ac.za)