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Defenders of the Dragon: A Community Science Success Story

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Defenders of the Dragon: A Community Science Success Story



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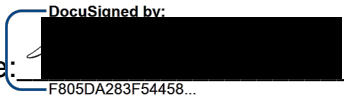
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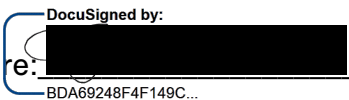
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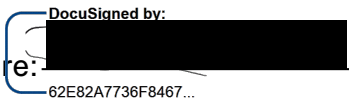
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Capstone Report

Abstract

Despite the massive scale of the Great Southern Reef, which hugs the coastline from New South Wales to Western Australia, many residents are unaware of its existence. Even fewer residents understand the large amount of biodiversity found in this interconnected temperate system characterized by kelp forests and rocky reefs. Efforts to publicize the area and gain traction for funding and conservation are in their infancy. Conservation funding remains disproportionately low compared to the Great Southern Reef's counterpart, the Great Barrier Reef. Visibility is a tool that can be used to generate greater awareness, and by extension, balance funding and protection for the Great Southern Reef. To raise awareness, this project uses science communication tools and engages with local communities across the Great Southern Reef. By utilizing illustrative storytelling through film, this project looks through SeadragonSearch, a specific community that has come together to protect the endemic seadragon through photography. The goal in documenting this community is to enhance understanding of the Great Southern Reef while also encouraging the public to find their own community science action that can spark a movement of change.

Problem Statement

The Great Southern Reef and its Inhabitants

Approximately 70% of Australia's overall population live near the coastline that makes up the Great Southern Reef (GSR). Many depend on the GSR for their livelihoods through tourism, fishing, and other marine-related economics that are dependent on the area's rich biodiversity (Bennett et al., 2015). Despite the GSR's significance to a large portion of the population, few resources have been put toward the survival of the coastline to combat the impact of climate change to the GSR and consequently, the ecosystem is in peril.

The Great Southern Reef (GSR) stretches nearly 8,000km across the southern half of Australia and Tasmania, borders five different states, and spans the Indian Ocean, Southern Ocean, and South Pacific Ocean. The area is characterized by nutrient rich cooler waters that host a plethora of biodiversity suited for temperate waters. The GSR is home to a wide variety of species with over 70% being endemic to the area, including the charismatic seadragons.

Seadragons are part of the family Syngnathidae that also includes seahorses and pipefish. They are only found on the Great Southern Reef. There are three known species-, the leafy seadragon (*Phycodurus eques*), the weedy or common seadragon (*Phyllopteryx taeniolatus*), and the newly discovered ruby seadragon (*Phyllopteryx dewysea*). Each species differs morphologically from one another. However, the leafy and weedy stand out in the family

with leaf-like appendages that perfectly camouflage within the GSR's kelp forests (Wilson & Rouse, 2010). Because seadragons are so charismatic, they are considered flagship species for the GSR and can be indicators of health for the overall ecosystem.

There are numerous threats to seadragons, however the largest threat continues to be habitat loss of the Great Southern Reef due to global climate change. Seadragons, like many other species that live on the GSR, are not adapted to live in the warmer, more tropical waters to the north nor the colder, deeper waters to the south.

SeadragonSearch

In order to combat the impacts of climate change on the Great Southern Reef, policy that dictates funding and protection for the GSR needs to be implemented. However, many species and the GSR itself remain largely data deficient – there simply is not enough information to advocate for protection. Despite being a flagship species, data on seadragon life history, biology, and other basic population demographics remain scarce. Research efforts are slow and it is difficult to maintain routine tracking and observations at scales as large as this.

To combat this, SeadragonSearch utilizes the power of the community and artificial intelligence to obtain more data that can be translated into conservation within the GSR. The organization asks everyday people to submit photos of seadragons they come across while in the water. From those photos, the team at SeadragonSearch can identify and catalog individual seadragons throughout their lives and learn valuable data. Since its public release in 2020, SeadragonSearch has received over 16,000 submissions and answered questions relating to lifespan, reproduction, habitat range, and more. The ultimate goal is to contribute and utilize more data toward policy and conservation.

Project Objectives & Deliverables

The overall goal of this film is to show the interconnectedness between the diving community, their love for seadragons, and the impact of their efforts on the environment. The film will follow various communities throughout the GSR as they embark on the ultimate adventure to try and locate their favorite seadragons. As a viewer, you will witness the triumphs, the failures, the laughs, and the emotion of these adventures. **Storytelling is powerful when people are connecting to nature.**

The underlying goal of the film is to showcase that as individuals, we carry an enormous amount of power with our actions to create positive change. I have built a narrative around the SeadragonSearch community in which each individual contributor will share their seadragon story and take us on a journey to learn more about the seadragon, their habitat on the Great Southern Reef, and their threats to survival because of the lack of protection on the GSR. The

aim is to leave each viewer wondering, what is happening with my seadragon, what action can I take in my own backyard that can make a difference?

This 6-minute clip is a trailer to a full film that will be edited and written by myself and other media professionals in the coming months. The goal is to use this trailer to help fund the completion of the full film in order to submit to upcoming film festivals for consideration. In addition to the feature film, the footage obtained will be utilized to create individual short social media videos on each contributor. These short personal stories will be utilized by SeadragonSearch on their social media channels as well as promotional materials to encourage more participation.

[Link to Film Trailer](#)

Methodology

Pre-Production

My research for this project began in Winter quarter when I held initial video calls to SeadragonSearch contributors. These calls were crucial to understand the motivation behind their actions, but also build trust between us. I also used this time to consult with fellow television producers to brainstorm creatively about the film. It was during one of these calls in which a former colleague offered to help come to Australia to help film.

Production

Production for this film took nearly 30 days from start to finish. We began our journey in Western Australia in Perth and then moved on to Bremer Bay. It was in Western Australia where we stumbled upon a timely seadragon story where leafy seadragons were making headlines because they are not often found in the area. We were able to capture the excitement in real time. From Western Australia we headed to Melbourne and documented the most unlikely diving pair brought together by their love of dragons - a professional cellist and a wheelchair manufacturer. Our journey then moved to Tasmania where we spent time with a diver who has been looking at seadragons long before diving air tanks had pressure gauges. We wrapped up our trip in Sydney with the top contributor to SeadragonSearch that is quote, obsessed with looking after the dragons and will do it until he dies. In all, we interviewed and filmed fourteen contributors and countless dives, conversations, and action.

Post-Production

I began the post-production process while on the road in Australia by transcribing all my footage. Upon return in mid-April, I got to work right away with organizing, grouping audio and footage, and selecting video I thought may work. I then began a paper script on the full film to understand what this film could potentially be. This was needed in order to create an effective

and accurate film trailer. After the initial paper script, I began building sequences and creating the storyline for the trailer. After feedback from former colleagues, my CAC, and family, twelve different versions of the trailer became one. The goal: create a memorable piece that creates a desire to learn more and watch the full film.

Conclusion:

Through this experience, I found there is a need to bridge the gap between the science world and the public. This can be achieved through a new wave of documentary experiences that not only improves knowledge of the viewer, but creates excitement, happiness, and leaves room for hope. As conservationists, it is time to start telling that story – a story of joy and success instead of doom and gloom. Stories that incite change are the key to preserving our future, one seadragon at a time.

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