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An Exploration of Effective Messaging for Shark Conservation

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An Exploration of Effective Messaging for Shark Conservation



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M.A.S Capstone Report

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1. Introduction

The world of shark conservation is varied and complex. There is no one-way or right way to tackle the many issues facing sharks. Indeed, most solutions require multiple campaign strategies and interdisciplinary collaborations to successfully affect change for issues such as overfishing to fuel the shark fin trade (Techera and Klein, 2014), the accidental bycatch of sharks during targeted fisheries (Musick, 2000), and the lack of regulations and management plans in place to reduce the capture and trade of shark products (Musick et al., 2000; Dulvy et al, 2008), to name a few.

However, outside of our target audience, our niche group of shark lovers, environmentalists, suppliers and consumers of shark products, and legislators, the rest of the general public is largely unaware of the major issues facing sharks around the world. Most people know what a shark is, but they identify the word “shark” with Steven Spielberg’s monster in the blockbuster “Jaws” or with sensationalist media coverage and main stream documentary shows such as Discovery Channel Shark Week (O’Byrhim, 2009). More recently, sharks are beginning to be associated with pop culture items, such as the shark from Pixars film “Finding Nemo” or Left Shark, Katy Perry’s backup dancer, dressed as shark, from her 2015 Super Bowl Half Time show. The reactions to the word shark range across the board, but regardless if someone thinks of a cool shark scene in a movie or a warm pair of socks, one thing remains consistent; the belief that sharks are bloodthirsty man-eaters waiting to prey on the first set of toes that reach the oceans edge.

So how do we change this perception in order to increase support for sharks?

Changing the way people think about sharks has been a top priority for most shark conservation Non-governmental organizations (NGO’s) and their campaigns. Nearly every goal set by an education, awareness or policy driven campaign is based on changing perceptions but it seems this message is not being effectively communicated.

So I set out to discover why.

After conducting a meta-analysis of 35 current shark conservation and awareness campaigns (Appendix 1), I noticed some similar trends across the board:

- Lack of originality. The story of sharks is largely being told the same way to the same group of people but expecting different results. Sharks are portrayed in the same way and so is their story. Big, familiar, and charismatic sharks that everyone recognizes are highlighted while lesser known, but just as interesting, sharks are overlooked.
- Most campaigns are not presented well on the web or across their media platforms. Many websites are cluttered with information and bulky text causing the entire operation to almost have an air of unprofessionalism or not being kept up to date. The message is not clearly stated, effectiveness or victories are hard to define and suggested actions for continued support of the campaign are not clearly communicated.
- There is little to no social media presence. Compared to how prolific the corporate world uses social media platforms to retain customers and recruit new ones, many NGO's are lacking on this front with posts on Facebook, Twitter, Instagram, etc, being far and few between, regardless of how many followers they have.
- There is a strong emphasis on asking for funding but not enough explanation of what this funding will do to help the campaign or help sharks. The facts are being stated and the issues are being aptly described, but there is a lack of engagement and connection to sharks.

In addition to conducting this meta-analysis of shark campaigns, I sought to engage professionals in conservation media and communication as well as marketing professionals outside of the realm of conservation. These professionals ranged the gambit from an Aquanaut, a wildlife film producer, founders and CEO's of

successful NGO's, and the Chief Marketing Officer of a large global advertising agency, to name a few. Their suggestions and opinions on how to tackle this issue and increase messaging to broader audiences were both positive and feasible. Some stand out suggestions were as follows:

- Portray sharks in a positive light that is the exact opposite of the expected stereotype.
- Link sharks to things that appeal to people such as celebrities, music, sports, pop culture, etc. This will increase the familiarity of the subject with the audience.
- Create innovative storytelling and show sharks in a different light. Highlight newly discovered shark species, new science discoveries, new approaches and technologies for filmmaking and photography.
- USE SOCIAL MEDIA and update websites and all media platforms regularly and consistently.
- Tap into human emotions and use them to your advantage when communicating messages of need for shark conservation and awareness.

My hope for this report is to bring attention to the need for more effective messaging for shark conservation as well as provide a list of recommendations for best practices and suggestions for further research on the matter. Changing the way people feel about sharks will not single-handedly solve all of the issues facing sharks, but it will increase the public's knowledge and awareness. It has been shown that increasing one's knowledge of a subject is correlated with a change in attitude; usually resulting in a positive attitude change (Thompson and Mintzes, 2002). Creating a more positive attitude towards sharks may increase widespread support and motivate people to take action towards protecting sharks by engaging with their local legislator, donating money to conservation causes or be more willing to not participate in activities that negatively affect sharks, like consume shark fin soup or attend shark fishing tournaments.

Now is the time to invest more energy and resources into engaging a wider audience. Shark populations are declining rapidly but recently, there has been a hint of changing perceptions. Millions of people watched a goofy shark dance on stage during the Super Bowl Half Time show for 13 minutes and then have continued to talk about that shark for 6 months after. Popular clothing companies, like Forever 21, are beginning to print shark patterns onto many of their products. BBC One has produced an extraordinary documentary series about sharks that is exciting, compelling and highly educational and which doesn't propagate the stereotype that people expect.

It is possible to rebrand the shark image, but we need to act now. We need to invest in marketing. We need to increase our social media presence. We need to tap into pop culture, music, the arts; find things that appeal to people on a grander, yet more familiar and simple level. The answer to that age old question of how to change the public's perception of sharks is out there, and I hope the contents of this report will bring us one step closer.

Sharks

Sharks have been in existence for an astounding 450 million years and have survived multiple mass extinctions throughout that time (Grogan et al., 2012). They comprise the Class Chondrichthyes, a diverse group of cartilaginous vertebrates that are divided into two subclasses; Elasmobranchii, which include modern day sharks, rays, skates, sawfishes, guitarfishes and the subclass Holocephali, which include Chimaeras (Heinicke et al., 2009). There are an estimated 1,200 cartilaginous species known, which include at least 500 known species of modern shark, or Elasmobranchs, which will be discussed here (Heinicke et al., 2009).

Sharks occur in all six oceans throughout a variety of habitats ranging from Arctic waters to tropical coral reefs to shallow coastal waters and deep ocean basins (Heinicke et al., 2009). Their migration patterns differ just as greatly as the habitats they occur in, with some species making transoceanic migrations while others remain in localized areas (Kiszka and Heithaus, 2014). Evolutionary adaptations to these different environments has caused sharks to evolve into a variety of shapes

and sizes, ranging from the tiny, 5-inch pocket shark (Bryner, 2015), to the iconic Great White Shark and to the largest fish in the world, the Whale Shark. Each order of shark exhibits different feeding modes from planktivorous filter feeding to predation of large marine mammals, although regardless of food choice, all sharks are considered carnivorous. (Kiszka and Heithaus, 2014)

Although sharks and their relatives vary across the board, they do share certain life history characteristics and are considered K-selected species, which are defined as having a slow growth rate, late age of maturity, low reproductive rates and productivity, large size at birth and a long life expectancy (Last and Stevens, 2009). These characteristics cause sharks to be vulnerable to unsustainable fishing pressures (Camhi, 1998).

Uses

Sharks provide a variety of products to consumers, such as shark meat, liver oil, cartilage, skin and teeth, which have encouraged the continued international trade of these products (Clarke et al., 2004). Consumption of shark meat has recently risen in popularity, particularly that of the thresher and mako shark, as more commercially popular fish species have declined and can be found in local grocery stores and restaurant menus worldwide (NOAA Fishwatch, 2012). The famous fried fish dish, fish and chips, which historically used cod or haddock, now frequently uses dogfish in the US, UK and throughout Europe (NOAA Fishwatch, 2012).

Many shark products are thought to contain medicinal properties and cures for such ailments as arthritis, eczema and even cancer and can often be found in pill and supplement form, cosmetic lotions and makeup (Clarke et al, 2004). It was believed that sharks never got sick or developed cancer and that these traits would pass onto consumers who consumed these products (Mondo et al., 2012). There is currently no scientific basis or proof that consuming shark products will cure ailments of any kind and recent research has discovered that sharks do indeed develop cancer and accumulate large amounts of mercury in their system which can be harmful to consumers (Mondo et al., 2012).

The most highly sought after shark product is its fin, which has been the main ingredient in the luxury food item of Chinese cuisine, shark fin soup, for several hundred years (Clarke et al., 2006). During the Ming dynasty, royalty and the very wealthy were the only consumers of this delicacy (Clarke et al., 2006). It's appeal as a luxury item has persisted until today, fetching prices of US\$100 for a single bowl (Clarke *et al.*, 2006). With the growing middle class in China and throughout Asia, the demand for shark fins has rapidly increased in the last two decades (Eriksson H. and Clarke S., 2015).

Threats

Currently, the greatest threat to shark populations is the global shark fin trade (Clarke, 2004). In an attempt to fuel the demand for this lucrative item, 150 countries have contributed to what has been estimated as being between 26 and 73 million sharks caught each year to supply the shark trade (Clarke *et al.*, 2006) with new estimates increasing that range to between 63 and 273 million (Worm *et al.*, 2013). This estimate does not include artisanal fisheries, sharks processed at sea, and those caught by illegal, unregulated and unreported (IUU) fisheries (Pramod *et al.*, 2008).

Due to the lucrative nature of the shark fin trade and the rapid expansion of global fishing fleets, shark fins have become the most expensive seafood product in the world (Clarke, 2004; TRAFFIC, 2005). Most sharks are caught as bycatch for other high-value species, such as tuna or swordfish (Hepp and Wilson, 2014). Although their fins are highly-valued, their meat is not (Hepp and Wilson, 2014). In order to increase cargo hold space onboard, fishermen began to realize that they could get more money by discarding the less valued shark meat but still retain the fins. This allowed for more storage space for targeted species and thus began the process of shark finning. Shark finning is the process in which sharks caught directly or indirectly as bycatch have their fins removed while the remaining, finless carcass is discarded at sea and often while still alive (TRAFFIC, 2005).

In recent decades, sharks have been increasingly exploited as target fisheries and as bycatch. Bycatch, as defined by NOAA, is “discarded catch of any living marine resource, plus unobserved mortality due to a direct encounter with fishing gear” (NOAA, 2012). In other words, bycatch includes all untargeted species accidentally caught in a target fishery. Due to their migratory patterns and behavior, it has been difficult to monitor shark populations properly (Baum et al., 2003). Baum et al., using logbook data from Northwest Atlantic longline fleets targeting tuna and swordfish, has shown that population declines in scalloped hammerheads is ~89%, white sharks ~79%, tiger sharks ~65% and oceanic whitetip ~70% in the past 15 years.

For such an iconic species, there are very few regulations and laws for protection in place for them. Out of the 500 something known species of sharks, only 10 species of sharks and rays are “protected” under the Convention on the International Trade of Endangered Species (CITES), an international coalition to monitor and moderate the trade and regulation of endangered species (CITES.org). Too slowly, states, countries, nations, principalities are beginning to support shark fin bans, however there are not enough resources or international capacity to enforce these bands and regulations to stop IUU fishing and the shark fin black market (Hepp and Wilson, 2014). Likewise, not enough is known about the life histories of most shark species, many of which are not bound by international ocean boundaries, causing the development and implementation of management policy’s to be a challenge (Hepp and Wilson, 2014).

As sharks continue to be overfished, they also face challenges from an increased anthropogenic disturbance in the ocean as well as effects from environmental change (O’Byrhim, 2009). Coastal developments are negatively impacting breeding grounds and nurseries while garbage pollution and ghost fishing are entangling sharks and ending up in their digestive tracks. The effects of climate change are not fully understood, but rises in sea temperature and ocean acidification may greatly impact prey abundances and habitats, such as coral reefs (Freeman et al., 2013).

Image Problems

It's hard to wonder why there aren't more protections in place for sharks. Of course, international collaborations are always difficult, but it seems to be partly due to the fact that sharks have got a terrible image problem. Sharks have been feared for centuries. Merchants, traders and great explorers have all recorded observations, poems and stories of the strength, speed and efficiency of these animals in the water (Wolper, 2015). Although it wasn't until 1778 that sharks became a feared monster in pop culture. Described as the original "Jaws", John Singleton Copley's famous "Watson and the Shark" painting was one of the first visual depictions of a shark to enter mainstream society (Wolper, 2015). The painting told the true story of Brook Watson and his encounter with a shark in Cuba. The artist, Copley, created a truly terrifying scenario in his painting, with an anatomically incorrect shark that is more a monster, bearing down on an angelic, helpless boy.



John Singleton Copley's "Watson and the Shark" (Wolper, 2015)

Now, fast forward nearly 200 years to 1975 when Steven Spielberg's iconic summer blockbuster "Jaws" hit the big screen. Just as Copley turned a shark into a monster, so did Spielberg. His mechanical shark, Bruce, was realistic enough to know it was a shark, but there was something anatomically and behaviorally amiss that transformed that fake shark into something of our nightmares. The implications of Copley's work and most recently that of Spielberg are still prevalent throughout our culture, causing the majority of people aware of sharks to develop an ingrained fear of them.

Consequently, news and entertainment media have realized that the "shock factor" increases ratings. Shark attacks are far and few between and only result in one or two deaths a year. You are more likely to be killed by a cow than by a shark. However, anytime there is an incident involving a swimmer and shark, it makes national and international news headlines and often negatively (Muter et al., 2013).

The same is true for the Discovery Channel's Shark Week. Once a year, Discovery claims to be a leader in scientific education and awareness and puts on a blood thirsty, weeklong event showcasing the monster shark we all fear. Shark Week has been shown to be the main source of shark education to the general public (O'Bryhim, 2009). We need to make sure this information does not foster the stereotypes of sharks. It's this fear, exaggerated by a stereotypical image and perception of what a shark is and does, that may be a contributing factor to the slow progress towards their rightful protection and conservation.

The Importance of Sharks

As top predators, sharks play an integral role in maintaining the health and balance of the ecosystem. Many studies have shown that the removal of predators from the environment may have adverse affects on prey abundances and ecological processes down and along the food web (Baum and Worm, 2009; Walsh et al., 2012; Wirsing and Ripple, 2010). These changes in ecological processes may lead to the increase or decline in other species, "with unpredictable consequences for ecosystems and yields for other commercially important species" (Camhi, 1998). We are not fully aware of the implications of continuing to remove these top predators

from the equation, so there is need for more research on their habitat use, foraging behavior and diet among “individuals, populations and species and across time and space” (Kiszka and Heithaus, 2014).

There has been a recent increase in shark diving tourism and it’s associated profitable revenue, with an estimated 376 shark eco-tourism operators around the world (Gallagher and Hammerschlag, 2011). Studies have been conducted that show that a living shark over the course of it’s life is worth a far greater value than the one time value for a dead shark. For instance, WildAid reported that a single reef shark in the Bahamas is estimated to be worth US \$250,000 over its lifetime due to tourism and only US \$50 if killed and sold (WildAid, 2007). In many cases, the value of a shark in the tourism industry is greater than what can be gained by a fisherman in a commercial or artisanal fishery (Ward-Paige, 2014), meaning that it would be beneficial from an economic standpoint to establish more regulations and protections for sharks to keep them alive.



2. Project Methods

Campaign Analysis:

In order to obtain a concise view of the issue at hand, I identified and reviewed 35 shark conservation and awareness campaigns led by both large and small non-governmental and governmental organizations. This was mainly conducted through a web based examination and literature review of the NGO's campaign website and online materials. An appendix (Appendix 1) was compiled to identify the messaging traits of each campaign to compare and contrast amongst those under review. The components of each campaigns messaging technique was divided into (6) categories, including Campaign Goals, Position, Approaches, Audiences, Social Media, and Measures of Effectiveness.

Campaign goals covered topics such as the campaigns mission statement and what they hope to accomplish. These ranged from improving policies influencing legislative protections for sharks, to changing the way that people view sharks. Other goals also included conducting, funding and supporting research initiatives; raising awareness about the practice of shark finning and sharks role for the health of ecosystems, and ending the consumption, sale and trade of shark products as well as to reduce the demand.

Position identifies which stance the campaign is taking. In other words, is the campaign focusing on the brutality or unsustainability of shark finning, the demand, trade and consumption of shark products, the lack of proper management policies and regulations for shark protection, how crucial sharks are to the overall health of the eco-system, or addressing the image problem of sharks.

The "**Approaches**" category identifies the strategies used to fulfill the mission statement. These range from Adopt-A-Shark programs, training citizen scientists to creating high-impact celebrity focused multi-media campaigns and creating

education/awareness for school-aged children. Documentary films and photography, as well as lobbying and advocacy are also approaches used.

The “**Audience**” category describes who is being targeted by this campaign. Target audiences range from government leaders/legislators, consumers of shark products, suppliers of shark products (hotels, grocery stores, etc), SCUBA divers, fishermen, students, environmentalists as a group, celebrity endorsers and donors.

Social media has been included as a category in attempt to quantify the reach of shark conservation messaging and who is receiving the message. Social media includes Facebook, Twitter, Instagram, Youtube, Google +, etc and the campaign website.

The last category, and most difficult to gather results from, is that of **Effectiveness/Victories**. Tangible victories such as the passing of bills/legislation and/or the creation of shark sanctuaries and quantifiable “effectiveness” such as large spikes of social media followers, downloads of movies and the price of billboards/commercial media spots are some examples, to name a few.

Campaign Interviews:

After conducting the literature review and review of campaigns, campaign organizers were contacted and asked details about their campaign in an attempt to draw comparisons between how the campaign is perceived by the public compared to how it is perceived by those organizing/running the campaign.

These questions mainly pertained to the types of tactics used for promoting the campaign, strategies used for targeting a specific audience and reaching outside of that target audience, how much time or resources are allotted for messaging/marketing, and how they measure the effectiveness of their messaging.

Professional Assessments:

To explore another perspective on the effectiveness of current shark campaigns while also exploring answers to the question of “how to change the general public’s perception of sharks”, marketing professionals outside of the realm of conservation were contacted to get their opinion. These professionals included two professors from UCSD Rady School of Management, Dr. Elanor Williams and Dr. Christina Klein as well as the Chief Marketing Office (Colby Webb) and Chief Strategy Officer (Nelson Freitas) from the advertising agency, Wunderman in New York City. Specific questions ranged from:

- 1) How do you tackle this issue of teeth and claws?
- 2) What traditional marketing techniques can be used to change peoples’ perception of sharks?
- 3) Can traditional marketing be used effectively for something as novel as sharks?
- 4) Is the case of sharks just a classic example of re-branding a product?

These questions, along with a discussion about sharks in pop culture, were asked to three classes of undergraduates (between 100-200 students) studying Product Marketing and Management and Brand Management at the University of California, San Diego Rady School of Management. This informal conversation allowed for an interesting insight into how young adults perceive sharks, how they are portrayed in pop culture and how they react to the word and concept of “conservation”.

Conservation professionals who specialize in communication, but who do not necessarily focus on sharks, were approached and asked similar questions as those to the marketing professionals. These professionals included Fabian Cousteau – professional Aquanaut, Dominique Cano-Stocco – past Campaign Director for Oceana’s Responsible Fishing Campaign, Chris Palmer – distinguished wildlife film producer, Peter Neill – current Director of World Ocean Observatory, Shawn Heinrichs – Founder of Blue Sphere Media and Sue Chen – WildAid Board member.

Comparisons were also made between campaigns for other large predatory animals, such as wolves and polar bears, to see what strategies were used. It was decided that the closest animal with a similar image problem to sharks is the pitbull, and so reviews of current campaigns were conducted and the founder of the Sav-A-Bull campaign, Colby Webb, was interviewed.

Suggestions from these 11 interviews, combined with the campaign analysis and literature review, were compiled into a list of 14 recommendations for effective messaging for shark conservation across a wide audience.

3. Recommendations

The following represents a list of best practices, suggestions and recommendations for effective messaging for shark conservation gathered from a host of conservation and marketing professionals, an enthusiastic gaggle of undergraduate marketing students, and from personal observations.

1) Portray sharks in a POSITIVE light that is the opposite of the expected stereotype. In order to combat a particular stereotype or brand image, you must avoid that stereotype at all costs. In discussions with Colby Webb, the Chief Marketing Officer for the advertising agency Wunderman as well as the founder and CEO of Sav-A-Bull, she stressed the importance of avoiding stereotypes across all platforms of a campaign right down to the font choice and color of font. Pitbulls face similar image problems to sharks, where they are discriminated against for fear of their “vicious” nature and the types of people who normally own pitbulls, i.e. criminals or gang members. Colby put immense thought into the design of her campaign, using bright, positive images of pitbulls, with a clean and friendly font choice.

2) Link sharks to things that appeal to people such as celebrities, music, sports, and pop culture. The most successful consumer-targeted campaigns are ones that star the biggest celebrity in the targeted region/country. For example, the WildAid and Shark Savers campaign “I’m FINished with Fins” stars Yao Ming, the biggest

celebrity in China, on billboards, sides of buses, TV commercials and short films declaring his choice to not consume shark fin soup. Joining Yao Ming in his pledge is an entire host of public figures and celebrities from around Asia, ranging from actors to pop music groups.



WildAid's multi-media campaign "I'm FINished with Fins" with celebrities popular in Asia

By linking sharks to things that are appealing to people, you are making sharks more familiar. By having an underwater model, a beautiful woman in only a dress without any diving apparatus (something familiar), pose next to a giant manta ray (the unfamiliar), allows the viewer to simultaneously process the familiar aspect of the photo and question the unfamiliar. This was seen in Shawn Heinrich's wildly successful campaign Manta's Last Dance and Tigress Shark. Creating an experience like this, by using celebrities, popular music, art, sports, objects/figures/experiences popular in pop culture, familiarizes the message you are trying to communicate creating a more memorable experience. We need to realize and remember that sharks, the ocean, ecosystem, and food webs are all terms and ideas that may be too abstract for most people to fully grasp. Their inability to understand or their lack of knowledge of these concepts is enough to deter them from ever even considering taking a full interest in them to start.

Along the lines of making knowledge familiar, we must make it fun and inspiring. We need to make conservation and any ocean issue we are trying to

communicate cool and relevant. Let's bridge generational gaps while creating truly entertaining, fun, familiar and inspiring stories, videos and photographs to reach the masses!



Shawn Heinrich's "Tigress Shark" campaign with Hannah Mermaid in response to Western Australia's Shark Cull.

3) Create innovative storytelling and show sharks in a new light. Literally. Utilize new approaches and technologies in filmmaking and photography, like ultra HD cameras and drones. Film and photograph animals from new angles and in new locations. Let's step away from the grossly popular shark species, like the great white and hammerhead and spend some time on new shark species, many of which are just now being discovered or that have never been widely broadcasted. Highlight new exciting science discoveries.

4) Use social media. Social media is the easiest way to test new messages with the most expensive resource being time. Most NGO's and campaigns barely scratch the surface of what they can accomplish when using social media such as Facebook, Twitter, Instagram, Tumblr, Pinterest, etc. Postings need to be made at least three times a day, consistently, and across all platforms. Responses should be made promptly. Posts should be engaging and educational and should highlight your own work or the work of someone else. For Facebook, there are tools that can be used to increase traffic on your page (pay to boost certain posts) while also monitoring what other NGO pages are doing (Facebook Insights). These sites are the main way most people receive their news and entertainment and we need to capitalize on this scene.

5) Update websites. Make them simple to navigate and professional looking. Make smart choices for design – artful, clean, keeping font and colors in mind while also keeping in mind how the fonts and colors you choose contributes to stereotype imaging. Keep the amount of text to a minimum. No one has time to read a long sweeping explanation about shark finning (or this report) nor do they want to. They want the facts up front, short and easy to read. Use more pictures and interactive media like short videos, vines, memes, gifs, etc. A website can still be educational and communicate important messages while also being fun and appealing.

6) Tap into human emotions. This is an old tactic used by corporate marketing companies. Target emotions that may rile people up a little, create a small rebellion. Or make people sympathize with sharks and want to protect them. Don't be afraid to be a bit aggressive. Sue Chen will often tell people, “what we do to sharks is the cruelest thing we do to any animal on this planet. Can you imagine if we treated cats, dogs, cows, chickens the same way?”

Use beauty and use humor. Humor is rarely used when it comes to science or conservation and humor is one of the only things to break barriers between different people and cultures. Be enthusiastic and upbeat– show your passion.

7) Emphasize the human experience interacting with sharks. Fabian Cousteau suggests we harness the wonder and excitement the average Joe might have interacting with these animals. Sometimes its more effective to have a “normal” person experience new interactions rather than have a professional or scientist or conservationist share their experience. Tap into peer storytelling.



8) Communicate the need you are trying to depict and give people an easy action to complete. Dominique Cano-Stocco, past Campaign Director for Oceana, suggests we “Give people a narrative they can understand, create a sense of fairness and give them a role they can be a hero in”. Prime your audience by reaching them when they are most relaxed, for instance at the end of the day, watching TV, etc so that when you ask them to do something, they will have some background understanding. Give them something to do and be clear about it. What action do you want them to take and how should they do it.

9) Obscure shark facts work but let's use examples that resonate with people even more or that are more entertaining. It may be hard for people to rationalize that you are more likely to die from a vending machine than a shark. Let's try fun facts that will jump out at people. For example, "you are more likely to meet Taylor Swift than be killed by a shark!"

10) Focus messaging on younger children in schools. Kids are often the most impressionable and are able to educate their parents and siblings. As well, don't overlook teenagers and college age young adults. Although this age group is often set in their ways, they wield the most power when it comes to trends, things becoming popular, the use and invention of new technologies and social media. They are the professionals at spreading ideas and news globally and virally and they are the ones propagating ideas around the world.

11) Create an alternative to Discovery Channel's Shark Week – i.e. BBC One Sharks. Or create something absurd, like Sharknado, but attach a conservation message to it. Discovery Channel's Shark Week has been critically important in engaging and captivating Americans and abroad for over 25 years. Although there is a lot of blood and guts, there are some educational shows and these shows are reaching a large group of the general public. However, we need to make sure these programs "do not contribute to the negative stereotype that already exists about sharks" (O'Bryhim, 2002).

12) Promote sharks in pop culture. For instance, Left Shark, shark patterned clothes, socks, baby clothes and dog costumes. Personify sharks and make them into cool accessories. Create more shark characters in fictional films like in Pixars, Finding Nemo.

13) Make comparisons between similar predators, such as wolves, polar bears, and pitbulls. Stress similar stereotypes and examples of people changing the way they feel about these animals. Or highlight historical changes in the public's perception about marine creatures, for instance changes from hunting whales to watching them.

14) Stop using the term "conservation". Be more innovative with your language in your message and pleas. Most people are tired of hearing the same phrases such as "conservation", "save the sharks", "save the pandas", "reduce, reuse and recycle, etc).

4. Conclusion

Thompson and Mintzes (2002) found that there was a positive correlation between people's knowledge about sharks and their displays of scientific and naturalistic attitudes towards them. O'Bryhim (2009) deduced that individuals who display a higher level of knowledge about a species or group of species should have a more positive attitude towards them. Likewise, Dobson (2007) found that people generally have a negative perception about sharks so increasing a person's knowledge about them could help to create more positive shark attitudes. Dobson (2007) also showed that increased knowledge and actual encounters with sharks changed people's attitudes towards sharks to one that was more positive.

Changing the way people feel about sharks is not the sole answer to solving the various issues of shark conservation, but it certainly may help. By creating a more positive attitude towards sharks, people may feel more willing to donate money or time to conservation minded causes, sign petitions, and be more willing to not participate in activities that negatively affect sharks like consume shark fin soup or take part in a shark fishing tournament. Legislators and members of office may be more willing to pass legislation and create policy changes that would increase protections for sharks if encouraged by their voters to do so.

More work on this subject needs to be conducted. This study only scrapes the surface of the public's perception of sharks and the best practices for increasing

effective messaging to engage a wide audience. Suggestions for creating a more comprehensive look at effective messaging would be to continue interviewing campaign organizers to see how they perceive the effectiveness of their campaign vs. how an outsider perceives it. This is very important for fully grasping what strategies may or may not be working.

Another suggestion would be to conduct panel surveys with a variety of viewers from different states, regions and countries to test different messaging strategies to see which may be the most effective and have the greatest influence on change of attitude towards sharks. Studies of this sort have been done, but they have been biased in who their survey subjects were, i.e. members of one educational institution and/or environmentalists who were already partial to sharks (Friedrich et al., 2014; O'Bryhim, 2002).

These 14 recommendations can also be generalized for other complex ocean issues. These recommendations are really a list of best practices for communicating to a wide audience and fostering public engagement. Just as it may be beneficial to increase the education and awareness of sharks to promote their protection through innovative and engaging means, the same can be true for issues such as sea level rise, ocean acidification, fisheries management, etc. Marine biologist and filmmaker, Randy Olson (2011), sums this idea up nicely:

“Involvement has to begin with motivation, and most people are motivated not by facts and figures, but through human elements like emotion, passion, and humor. Once the mass audience is motivated to plan an active role, feels ownership of this resource, wants to defend it and reaches out for information, then its needs can be met through effective messaging.”

We can save the sharks. But we need to be prepared to provide effective messaging that will reach a broader audience than what has been traditionally targeted. And in order to that, we need to get creative.



5. Acknowledgements

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6. Appendix 1. Categorized descriptions of 35 current shark conservation and awareness campaigns on following page.

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NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
1. Pew Charitable Trusts	<ul style="list-style-type: none"> - Improve policy, - Inform public, - Invigorate civic life - Influence shark fishing nations - Declare shark sanctuaries 	<ul style="list-style-type: none"> - Highlights plight of sharks from overfishing - Urges countries to take action to conserve them. 	<ul style="list-style-type: none"> - Website - Highlighted news and science reports - Short videos/photo galleries. - Links to social media prominently placed on site. 	<ul style="list-style-type: none"> - Gov't leaders - scientists - fisheries experts/managers - diplomats - survivors of shark attacks 	<ul style="list-style-type: none"> - Youtube: 2-7K views - Twitter: 17.8K followers for Pew Environment; 8k for Pew Trusts; -Facebook 6K Likes 	Shark Sanctuaries since 2009 - Palau, Maldives, Honduras, Bahamas, Tokelau, Marshall Islands, French Pol, Cook Isl, New Caledonia
2. WildAid	Consumer awareness campaigns that focus on demand reduction of shark products	Target consumers to lower demand to end overfishing and shark finning	<ul style="list-style-type: none"> - Celebrity ambassadors - Global network of media partners - deliver high-impact, culturally-sensitive multimedia campaigns that change behavior and help to relieve pressure on endangered wildlife - Acquired Shark Savers in 2013 	<ul style="list-style-type: none"> - Consumers of shark products - Urban elite that would respond to PSAs from celebrities and public figures - CEO's - Hotels - restaurants /banquet halls - Donors - Celebrities 	<ul style="list-style-type: none"> - Twitter: 24.8K Followers; - Facebook: 54,204 Likes, - Instagram: 398 followers but no posts 	<ul style="list-style-type: none"> - Measured by media time - Celebrities involved - Survey question responses - Chinese Twitter followers and responses
3. Oceana	Leverage for Shark protections under the Responsible Fishing Campaign (with a focus on Dusky sharks) under pretense that they are being negatively impacted through bycatch	-Bycatch - Health of ecosystem	- Strategic, directed campaigns that achieve measurable outcomes	Legislators, Federal agencies (NOAA)	<ul style="list-style-type: none"> - Twitter: 175K - Facebook:173K Likes - Instagram:46K 	- Successes influencing state shark finning bans
4. Save Our Seas Foundation	<ul style="list-style-type: none"> - Funds and supports research, conservation and education projects worldwide - Conservation campaign from 2008-2010, - Partnered with Pew to create an international coalition: Shark Alliance 	<ul style="list-style-type: none"> - Sharks role in ecosystem - leverage sharks iconic image and large public interest 	<ul style="list-style-type: none"> Funds and sponsors projects globally in the areas of research, education, awareness and conservation. - Engaging multi-media 	<ul style="list-style-type: none"> - Target school age kids - Project leaders in environmental policy and fisheries management - Independent researchers - labs - projects - photographers, etc to fund and sponsor. 	<ul style="list-style-type: none"> - Twitter: 70K - Facebook: 50K - Instagram:31K 	In 10 years, expanded from 5 to 150 marine research and conservation projects worldwide; successes with media projects online, offline, TV - Excellent Multimedia

NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
5. Bite-Back	<ul style="list-style-type: none"> - End sale of Shark fin soup in Britain - Remove all profit opportunities for shark products in UK 	<ul style="list-style-type: none"> - Over-fishing is biggest threat and over-consumption is root cause 	<ul style="list-style-type: none"> - Consumer targeted campaigns with celeb endorsers - Target supermarkets - Petitions - Report sightings of shark products in markets, etc. - Campaign Letters - Shark product sightings map 	<ul style="list-style-type: none"> - UK retailers - Grocery store owners and shoppers - Consumers - "Everyday People" 	<ul style="list-style-type: none"> - Twitter - 5,300 - Facebook - 15K Likes 	<ul style="list-style-type: none"> - Influenced ASDA, MAKRO, Morrisons, Sainsbury's, Somerfield, Tesco and Waitrose (major grocers) to stop selling key shark species - Nationwide restaurants/health food stores halt the sale of shark meat, shark fin soup and shark-derived products
6. Oceanic Defense	<ul style="list-style-type: none"> - Stop Shark fishing tournaments - Shark-free Marina - Stop shark finning 	<ul style="list-style-type: none"> - "Healthy aquatic ecosystems free from human abuse and neglect" 	<ul style="list-style-type: none"> - Teaches people to protect oceans by acting responsibly as consumers and by making smart decisions in daily lives"... 	<ul style="list-style-type: none"> Fishermen/fishing communities that benefit from big shark tournaments - People who attend shark tourneys - Boating marinas - Consumers 	<ul style="list-style-type: none"> - Facebook: 53K Likes - Twitter: 4k Followers 	<ul style="list-style-type: none"> - Not clearly stated
7. Stop Shark Finning	<ul style="list-style-type: none"> - To achieve a worldwide ban on shark finning by establishing a standard that all sharks must be landed intact" 	<ul style="list-style-type: none"> - Strategic Alliance - Personal endeavor... 	<ul style="list-style-type: none"> - Supports NGO's by organizing petition signings, protests against suppliers, lobbying for policy changes 	<ul style="list-style-type: none"> - Shark advocates - Environmentalist 	<ul style="list-style-type: none"> - Twitter: 28K - Facebook: 168K Likes - Email list to 1,200 subscribers 	<ul style="list-style-type: none"> - Not clearly stated
9. The Shark Trust	<ul style="list-style-type: none"> - Highlight need for science-based catch limits in EU shark fisheries - Work with gov't and industry to tighten shark finning reg's and ensure compliance 	<ul style="list-style-type: none"> - "Advancing the worldwide conservation of sharks through science, education, influence and action" 	<ul style="list-style-type: none"> - Adopt sharks (\$20) - sign petitions, http://www.sharktrust.org/en/shark_finning_get_involved 	<ul style="list-style-type: none"> - Gov't - Advocacy groups - School age children - Recreational/commercial fishermen 	<ul style="list-style-type: none"> Facebook - 14K, Twitter - 15K, 	<ul style="list-style-type: none"> - Raise Awareness - Lobby against finning at international level - support adoption and implementation of positive shark mgt http://www.sharktrust.org/en/achievements
10. SeaLife Trust	<ul style="list-style-type: none"> - Calling for science-based catch limits for sharks in Europe 	<ul style="list-style-type: none"> - End the overexploitation of sharks - Maintain ocean balance" 	<ul style="list-style-type: none"> - Not clearly stated; - Through innovative campaigns, scientific research and inspiring education 	<ul style="list-style-type: none"> - Aquarium visitors - Environmentalist 	<ul style="list-style-type: none"> - Facebook 1.3K - Twitter 171 followers 	<ul style="list-style-type: none"> - Not clearly stated

NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
11. Shark Savers	-Saving sharks and mantas through building awareness, education and action. - Joined WildAid	-Reduce the demand for shark and manta products -Protect sharks and their habitats - Acquire better data for shark populations	- High-impact media campaigns targeted at consumers in China. - Citizen Scientists/Divers - Passing legislation for shark sanctuaries/protections	-Chinese (consumers) - invested community (divers, enviros) - general public.	- 18.6K Twitter Followers - 78K Facebook likes - Successes with "I'm FINished with Fins" campaign throughout Asia; Manta Ray of Hope; SharksCount - citizen scientists; Adopt a Bull shark; Shark sanctuaries in the Pacific, Caribbean, Honduras	
12. Sea Shepard Conservation Society	Direct action campaigns to stop shark finning	- Shark Finning is brutal and unsustainable	- Partner with LUSH cosmetic products for shocking performance art - Confiscates illegal caught shark fins - Takes direct action to enforce laws - intelligence networks -uses supplemental printed and multi/media materials - maintains permanent presence in Galapagos Marine Reserve	- Animal lovers - Actively engaging Conservationists	- Twitter: 24K followers - Facebook: 287K Likes - Instagram 1.4K - Google +, LinkedIn, youtube: 3.6K subscribers -E-newsletter - Mobile Alerts	- Through excellent social media, messaging, TV shows, Videos victories are transparent and available for public viewing
13. Shark Alliance (2006-2010)	Collaborative campaign dedicated to restoring and conserving shark populations by improving European fishing policy	Was a global NGO coalition of non-gov't orgos dedicated to restoring and conserving shark populations.	Created to secure a Community Plan of Action for the conservation and management of sharks and tighter shark finning regulations in Europe -Collaborative project with Pew Charitable Trusts, European Elasmobranch Association, Project Aware and the Shark Trust	- European Union - European Parliament	- N/A	- "Won major victory in 2009 when Euro Commission released European Community Action Plan for the Cons and Management of Sharks and closure of EU Shark Finning ban loopholes" -BUT plan still needs to be translated into concrete measures

NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
14. The Nature Conservancy	"It's time we stop fearing sharks and start fearing a world without them"	- Protect and restore marine habitats for sharks - Sharks role in ecosystem	- Partners with key stakeholders - Local communities - Fishers, - Businesses - Gov't and non-profits -Pursues non-confrontational, pragmatic, market-based solutions	- key stakeholders - Local communities - Fishers, - Divers - Scientists - Businesses - Gov't and non-profits	Extensive: twitter and facebook pages for all regions US and abroad. 390K Twitter followers, 725K Facebook	Shark campaign under banner of larger campaign to Ocean and Coast Habitat
15. Conservation International	- Ending overfishing and damaging fishing practices	- Overfishing - Finning is unsustainable	Currently shark stories and blogs on Humanature site that target new species, shark week, etc (CI Blog page)	- Not stated clearly	- NA for sharks specifically although prevalent across all media platforms (Twitter- 85K, Facebook – 192K, etc)	- Currently running the "Nature Speaks" campaign - Capable of creating high-impact campaigns that have potential to reach a very wide audience
16. The Shark Research Institute	Multi-dis scientific research NGO that sponsors and conducts research on sharks and promotes their conservation	- Correct misperceptions of sharks - stop overfishing - create value for sharks as tourism	- Visual/satellite tracking - Behavioral and DNA studies - Environmental advocacy - Publications - Public Education	- Invested community Scientific, environmentalists and NGO's -marine resource users - fishermen, sport divers and dive tourism industry	- Facebook: 5.6K - Twitter: 10.8K	-Lobbying influenced decisions at CITES CoP15 and CoP16, - Local shark finning bans http://www.sharks.org/about/successes
17. Projects Abroad	Global Shark Campaign is giving volunteers from any background and any age the opportunity to help with the conservation of sharks and marine life	- Overfishing - Sharks role in Ecosystem - Jaws misrepresented	-Embarking on a campaign in 18 countries across 4 continents to raise awareness and provide research/data to contribute to shark conservation - Volunteer Citizen Scientists	- Volunteers - shark advocates environmentalists	Specific numbers for shark program unknown, but for entire organization: -Facebook: 39K -Twitter: 6.7K	- Supplies Volunteers to work with the Fiji Shark Conservation & Awareness project whose goal is to protect shark habitat in Fiji and conduct research on shark impacts on habitat/ecosystem

NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
18. Project Aware: Shark Awareness Campaign	<ul style="list-style-type: none"> - Dispel myth sharks are dangerous - Raise awareness about health to oceans and threats by unsustainable shark fishing - Increase public, gov't and school education - Advocacy for protection/ fishing 	<ul style="list-style-type: none"> - Overfishing - Bycatch - Finning - Image Problem 	<ul style="list-style-type: none"> - Citizen Scientists - Global Shark Survey - PADI shark diver specialty certification 	<ul style="list-style-type: none"> - Primarily SCUBA divers - Legislators - EU, CITES, IUCN, etc delegates 	<ul style="list-style-type: none"> - Facebook: 170K - Twitter: 26K; - - Instagram: 1.3K 	Influenced CITES listing through 135k signed petition and 245K letters send to delegates; contributed to \$314 global revenue in shark/manta diving tourism; \$100k raised in Finathon between '13/'14; 91k shark awareness PADI cards (@\$25/card)
19. Fisheries Conservation Foundation: Shark Conservation Campaign	<ul style="list-style-type: none"> - Change public awareness on the value of sharks through education and outreach 	<ul style="list-style-type: none"> - Threatened by coastal development, - Bycatch, - Habitat destruction - Overfishing - Poor public awareness on role in ecosystem 	<ul style="list-style-type: none"> - Education regarding myths about danger of sharks - Best handling practices for recreation angling of sharks (Shark Friendly Marinas Initiative) - Historical surveys in Bahamas - Symposia and workshops - Partners 	<ul style="list-style-type: none"> - Conservationist - General public - Fishermen - Students 	Facebook - 390, Twitter - 3k followers, no insta	- N/A
20. Ocean Ark Alliance/ Shark Water Film	Offer the documentary <i>Sharkwater</i> license free to whomever wants it by supporting United Conservationists	Global campaign to address the issue of mass slaughter of sharks for growing consumer demand	Film- license free media and scientific data for education and outreach	<ul style="list-style-type: none"> - Schools -Public aquariums -enviros - Gen public - Gov't - Provides license free media to NGO's like WWF and Greenpeace 	Ocean Ark Alliance has 370 Facebook likes, Sharkwater Film has 60K likes	- <i>Sharkwater</i> has been very successful reaching many people and exposing the behind the scenes look at shark finning particularly in Central America
21. United Conservationists/Rob Stewart	<ul style="list-style-type: none"> - Building on humanity to create change - Continuing wave of support from Sharkwater success 	<ul style="list-style-type: none"> - Address the issue of mass slaughter of sharks for growing consumer demand 	<ul style="list-style-type: none"> - Provides everyday people the tools to become effective advocates - Encourage gov't and legislative change to ban the sale and trade of shark fin -Petition - Spread the word, donate and plan a screening of Sharkwater 	<ul style="list-style-type: none"> -Enviros - General public - Gov't 	<ul style="list-style-type: none"> - Facebook: 5k - Twitter: 3K - Rob Stewart has 13K Twitter followers and 22K Facebook Likes 	<ul style="list-style-type: none"> - Influencing Canada to go Fin Free - <i>Sharkwater</i> successes - Released New film <i>Revolution</i>

NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
22. Fin Free - powered by United Conservationists	Eliminate the trade, sale and possession of shark fin globally	- Declines due to finning - Critical role to health of ecosystem - Shark fins contain high levels of mercury	- Focuses on reducing demand for shark fin through education, as well as personal and corporate responsibility; - Show <i>Sharkwater</i> and Wildaid PSA's - Contact congressman/sign petitions - Build awareness	- KIDS! - Consumers of shark products - Suppliers and providers of shark products - Gov't officials	- Facebook: 42K - Twitter: 3K	- Victory is based on success of <i>Sharkwater</i> which has educated millions of people on the plight of sharks - Influenced Global Fin Free Movement
23. Bahamas National Trust (sponsored by PEW)	"To continue to develop an integrated National Park and Protected Area System and foster initiatives to achieve conservation and sustainable use of natural and historical resources"	- Be proactive to protect their shark species for the health of the ecosystem and to increase tourism revenue from shark diving	- Jim Toomey Cartoons - Artwork by Guy Harvey - Info graphics for school aged students, - Petitions	- Bahamas residents - Enviro - Visiting tourists - NGO's	- Facebook: 19K followers	- Not clearly stated http://www.bnt.bs/_m1721/Our-Strategic-Plan - shark protection status
24. Save The Blue	To stop shark finning by supporting cutting edge shark research and education projects	- Unsustainable shark fin trade - Overfishing = Sharks role in ecosystem	- Support work being conducted tackle the shark fin issue from several key angles including human health, shark forensics, education and fisheries - Create a Chinese version of the film <i>Sharkwater</i>	- Chinese consumers	- Facebook: 251	- Not clearly stated
25. Wildlife Trust of India - Whale Shark Campaign	To spread awareness, educate and change perceptions about whale sharks among specific target groups in the region	To protect whale sharks from commercial fishing/capture in fishing nets	- Campaign Ambassador (popular spiritual leader) appealed to people on emotional and socio-cultural grounds - Youth involvement - Creation of flagship giant inflatable whale shark model which was incorporated into parades and celebrations	- Fishing community - Stakeholders, - Youth in Gujarat, India.	- Facebook: 4.5K - Twitter - 4.6K	- Quick turnaround 1-4 years - Whale shark adopted as mascot for coastal towns - Whale Shark appeared on stamp - Creation of statewide whale shark day - Gov't provided compensation for nets damaged by Whale Sharks

NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
26. WWF Global and WWF Hong Kong	<ul style="list-style-type: none"> -Raise consumer awareness - Encourage restaurants to use shark-fin substitutes - Create management plans for sustainable shark fisheries -Team up with TRAFFIC to improve mgt, reduce demand and move international trade of sharks and rays to sustainability 	<ul style="list-style-type: none"> - Hong Kong is largest consumer of shark fin but plight of sharks poorly understood here. - Surveys show that people will reduce/stop eating marine species if they knew they were in decline. 	<ul style="list-style-type: none"> "No Shark Fin Corporate Pledge" - pledge to not consume or promote shark fin at corporate functions in Hong Kong. - WWF Seafood Guides - Raise consumer awareness - Encourage restaurants to use shark-fin substitutes - Work with fishermen, gov't and stakeholders to create management plans for sustainable shark fisheries 	<ul style="list-style-type: none"> - Corporate consumers - Restaurants/ caterers - Regional Fisheries Management Org's 	<ul style="list-style-type: none"> - WWF Facebook: 1.5M - Twitter: 560K Followers, - YouTube: 17K 	<ul style="list-style-type: none"> - Updates listed in blog and articles on site - Difficult to find concrete list of successes
27. Humane Society International	<ul style="list-style-type: none"> - Stop shark finning -Pass Legislation - Reduce demand for shark products - Reduce opportunities for trade of shark products 	<ul style="list-style-type: none"> - Shark Finning as not humane and unsustainable - Introduce legislation for effective management - Stop shark fishing tournaments 	<ul style="list-style-type: none"> - Introduce legislation - Educate consumers, restaurants, etc - Promote Shark free marinas 	<ul style="list-style-type: none"> - Public - Restaurants/ Businesses 	<ul style="list-style-type: none"> -Difficult to see the social media support for sharks, but Humane Society International has upwards of 2million followers on facebook and twitter 	<ul style="list-style-type: none"> - Not clearly stated, website is so large it's difficult to locate information
28. WildCoast	<ul style="list-style-type: none"> - Stop shark finning in the world -Pass state legislation -Convince consumers to not consume and report restaurants - Support eco-tourism - Watch <i>Sharkwater</i> 	<ul style="list-style-type: none"> - Sharks misunderstood - Sharks essential to healthy oceans -Threatened by finning (emphasis on ruthless practice) 	<ul style="list-style-type: none"> - Stress actions people can take to help - Don't consume shark products - Support Eco-tourism 	<ul style="list-style-type: none"> - Legislators - Shark fin - Consumers, - Enviro's, 	<ul style="list-style-type: none"> Facebook - 16K Likes, - Twitter 3k - Great interactive website 	<ul style="list-style-type: none"> - Key participant of passing California's State Bill AB 376 - Impacts clearly stated on website
29. PRETOMA	<ul style="list-style-type: none"> - Promote shark management - Finning control and mortality rate reduction. - "Stop Finning" Campaign focused on closing loopholes that permit shark finning in CR. 	<ul style="list-style-type: none"> - Population decline due to overfishing by IUU vessels supplying shark fin trade - loss of sharks will cause ecosystem disruption 	<ul style="list-style-type: none"> - Scientific research - Strategic litigation to influence Costa Rican fishing politics - Public education and activism to promote shark management, -Finning control and mortality rate reduction. - "Shark Day" - when fishermen directly participate in research 	<ul style="list-style-type: none"> -Fishermen - Policy makers (regional and global) 	<ul style="list-style-type: none"> Twitter - 450 Followers; Facebook - 9.5K Likes 	<ul style="list-style-type: none"> -Regional and global requirements to land shark fins attached to body - Enforcement of illegal landings and invasion of MPA; http://www.pretoma.org/downloads/pdf/sharks-profile.pdf

<p>30. Fin Fighters</p>	<p>End sale and distribution of shark fin in UK by 2023 - Four campaigns: UK Fin Free by 2023; What's Beneath The Batter; Investigative fisheries/landing sites with The Black Fish; Ocean Optimism</p>	<p>- Declining populations due to overfishing - Sharks role in Ecosystem</p>	<p>- Objective is to mobilize and empower local communities - Citizen scientists - Campaign groups to end the destruction of habitat and species of oceans - Through science, education, conservation and action!</p>	<p>-Students - Local UK townships - General public - Citizen scientists - Legislators</p>	<p>- Facebook - 2.7K Likes - Twitter - 350 Followers</p>	<p>- Influenced Cambridge to become first UK's first city to condemn shark fin</p>
<p>31. PangeaSea</p>	<p>Contribute to the protection of sharks and marine life by encouraging environmental activism through art, science and environmental activist communities</p>	<p>Importance of sharks ecologically, "demonization" of sharks, population decline</p>	<p>"Through volunteer activism, research and various mediums of art...seeks to create a global change and develop an understanding to preserve and protect oceans and sharks"</p>	<p>- Enviro - Artists</p>	<p>Facebook - 3.4K Likes, - Instagram - 16.6K Followers, - Twitter - 1.2K Followers - links to youtube and vimeo</p>	<p>Art shows - Info-booths, - Youth education programs throughout Asia, - Collaborations with Rob Stewart, Shark Savers and Lush Cosmetics, AND Seawalls – http://pangeaseed.org/artivism/events/</p>
<p>32. Shark Friendly Marinas</p>	<p>"Reducing worldwide shark mortality one marine at a time"</p>	<p>- Healthy oceans need sharks - Commercial fishing contributes to decline but so does Recreational fishing</p>	<p>"Fisherman will no longer be allowed to bring sharks into a Shark-Friendly Marina for any photographic or trophy display purposes or for any cleaning or processing of the shark for fins, meat, jaws, or any other by-product. - Encourage fishermen to catch and release</p>	<p>- Celebrity endorsers - Important enviro board members, - Recreational fishermen - Marinas,</p>	<p>- N/A</p>	<p>- Extensive list of members and ambassadors worldwide</p>
<p>33. Shark Angels</p>	<p>Defend sharks and give sharks a voice to protect populations and improve the image of sharks</p>	<p>- Decline due to finning - Importance to ecosystem - Image problem</p>	<p>- Awareness education - Positive PR media - Campaigns focused on finning - Nets/fishing gear -Image - Build network of "shark angels"</p>	<p>- Youth - Enviro - General public through media presented on ABC, GMA, etc</p>	<p>- Facebook 63K - Twitter 11.7K - Instagram 7K</p>	<p>- Successful youth education programs (skype in the classroom, etc), - Social media has highest numbers so far - Media PR, - Collaborations with NGO's and projects</p>

NGO	Campaign Goals	Position	Approaches	Audiences	Social Media	EFFECTIVENESS!
34. Shark Truth - "Happy Hearts Love Sharks" campaign	- Promote Awareness, education and action for sharks with a focus on cross-cultural aspect of shark conservation	- Promote an open dialogue from a culturally informed standpoint. Nowhere is this more apparent than in our wedding contest that works to reward couples who vow not to perpetuate the unsustainable tradition of serving shark fin soup.	Wedding contest - couples make a pledge to not serve shark fin soup at their wedding and compete for the chance to win a honeymoon trip to, i.e Galapagos (2012). Fin free weddings, shark alternatives	Consumers - particularly of Asian descent	- Facebook - 7K - Twitter 5K ...No posts since April 2014	3 years of contests 2010-2012; in 2012, 19 couples made the pledge to not serve shark fin soup at their wedding - collectively 3500 guests = 350 sharks saved
35. Hong Kong Shark Foundation	Exists to raise awareness about shark conservation, with emphasis on unsustainable practice of shark finning and to reduce the consumption of shark products in Hong Kong	- Demand is causing decline, will threaten ecosystem - Hong Kong main trader of shark fin - Hong Kong has opportunity to make significant impact on global scale.	- Government lobbying - "NoseOff" Social media campaign - Fin-Free Wedding - Consumers - Ambassador Program	- Consumers - Gov't - Corporate hotels, business, restaurants - general public	- Facebook - 17K - Twitter - 1.2K Likes	Victory - 10, 000 signatures signed petition encouraging HK gov't to ban shark fin at all official functions...

7. References

Agrawal, A. and Gibson, C.C. (1999) "Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation", *World Development*, vol. 27, no. 4, pp. 629-649

Anissa Lawrence, (2014) "Collaborations for conservation", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

Atsmon, Y. Magni, M., Li, L. and Liao, W. (2012) "*Meet the 2020 Chinese Consumer*", McKinsey and Company, Hong Kong.

Bahamas Diving Association (2008) *Shark Diving Overview for the Islands of the Bahamas*, Bahamas Diving Association, Nassau.

Barker, M.J., and Schluessel, V. (2005) "Managing global shark fisheries: suggestions for prioritizing management strategies", *Aquatic Conservation: Marine and Freshwater Ecosystems*, vol. 15, pp. 325-347.

Barney, E. C., J. J. Mintzes, and C.-F. Yen. 2005. Assessing knowledge, attitudes, and behavior toward charismatic megafauna: the case of dolphins.(REPORTS & RESEARCH). *Journal of Environmental Education* 36:41(15).

Bates, C. H. (2010) "Use of Social Marketing Concepts to Evaluate Ocean Sustainability Campaigns", *Social Marketing Quarterly*, vol. 16, pp. 71-96.

Baum, J. K., R. A. Myers, D. G. Kehler, B. Worm, S. J. Harley, and P. A. Doherty. 2003. Collapse and conservation of shark populations in the Northwest Atlantic. *Science* 299:389-392.

Baum, J.K., and Worm, B. (2009) "Cascading top-down effects of changing oceanic predator abundances", *Journal of Animal Ecology*, vol. 78, no. 4, pp. 699-714

Benz, G.W., Hocking, R., Kowunna Sr, A., Bullard, S.A. and George, J.C. (2004) "A second species of Arctic shark: Pacific sleeper shark *Somniosus pacificus* from Point Hope, Alaska", *Polar Biology*, vol. 27, pp. 250-252.

Berkes, F. (2004) "Rethinking Community-based Conservation", *Conservation Biology*, vol. 18, no. 3, pp 621-630.

Camhi, M., Sarah Fowler, John Musick, Amie Brautigam, Sonja Fordham. 1998. *Sharks and their Relatives*. IUCN Species Survival Commission. Gland, Switzerland.

Cheung, G.C.K., Chang, C.Y., 2011. Cultural identities of Chinese business: networks of the shark-fin business in Hong Kong. *Asia Pacific Bus. Rev.* 17, 343-359

Cheung, Y.L., Tan, W., Ahn, H.J. and Zhang, Z. (2010) "Does corporate social responsibility matter in Asian emerging markets?" *Journal of Business Ethics*, vol. 92, no. 3, pp. 401-413.

Christine A. Ward-Paige, (2014) "The role of the tourism industry", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

Christopher Neff (2014) "Human Perceptions and attitudes towards sharks: Examining the predatory prey paradox", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

Cisneros-Montemayor, A.M. and Sumaila, U.R., (2014) "Economic rationale for shark conservation", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

CITES. 2008. Convention on International Trade in Endangered Species of Wild Fauna and Flora Appendices I, II and III. in UNEP, editor. CITES, Geneva.

Clarke, S. C. (2004) "Understanding Pressures on Fishery Resources through Trade Statistics: A Pilot Study of Four Products in the Chinese Dried Seafood Market", *Fish and Fisheries*, vol. 5. pp. 53-74.

Clarke, S. C., McAllister, M.K., Milner-Gulland, E.J., Kirkwood, G.P., Michielsens, C.G., Agnew, D. J., Pikitch, E. K., Nakano, H. and Shivji, M.S. (2006) " Global estimates of shark catches uses trade records from commercial markets", *Ecology Letters*, vol. 9, no. 10, pp. 1115-1126.

Clarke, S., 2004b. Shark Product Trade in Hong Kong and Mainland China and Implementation of the CITES Shark Listings. TRAFFIC East Asia, Hong Kong.

Clarke, S.C., McAllister, M.K., Milner-Gulland, E.J., Kirkwood, G.P., Michielsens, C.G.J., Agnew, D.J., Pikitch, E. K., Nakano, H. and Shivji, M.S. (2006) 'Global estimates of shark catches using trade records from commercial markets', *Ecology Letters*, vol. 9, pp. 1115-1126

Clarke, S.C., Milner-Gulland, E. J. and Bjorndal, T. (2007) "Social, economic and regulatory drivers of the shark fin trade", *Marine Resource Economics*, vol. 22. pp. 305-327.

CMS. 2004. Introduction to the Convention on Migratory Species CMS, Bonn. <<http://www.cms.int/about/intro.htm>>

Czech, B., Krausman, P.R. and Borkhataria, R. (1998) " Social Construction, political power and the allocation of benefits to endangered species", *Conservation Biology*, vol. 12, no. 5, pp.1103-1112

Department of Commerce, N., NMFS. 2001. United States National Plan of Action for the Conservation and Management of Sharks. in D. o. Commerce, editor. Department of Commerce, NOAA, NMFS.

Dobson, J. (2008) "Shark! A New Frontier in Tourist Demand for Marine Wildlife", in J.E.S. Highman and M. Luck (eds), *Marine Wildlife and Tourism Management: Insights from the Natural and Social Sciences*, CABI, Wallingford.

Dulvy, N. K., Julia K. Baum Shelley Clarke Leonard J. V. Compagno Enric Cortés Andrés Domingo Sonja Fordham Sarah Fowler Malcolm P. Francis Claudine Gibson Jimmy Martínez John A. Musick Alen Soldo John D. Stevens Sarah Valenti. 2008. You can swim but you can't hide: the global status and conservation of oceanic pelagic sharks and rays. *Aquatic Conservation: Marine and Freshwater Ecosystems* 18:459-482.

Erich Hoyt, (2014) "The role of marine protected areas and sanctuaries", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

FAO. 1999. IPOA - International Plan of Action for reducing incidental catch of seabirds in longline fisheries. International Plan of Action for the conservation and management of sharks. International Plan of Action for the management of fishing capacity. Pages 11-18 in F. a. A. Department, editor. Food and Agriculture Organization of the United Nations: Fisheries and Aquaculture Department.

File, I. S. A. 2008. International Shark Attack File. Florida Museum of Natural History, University of Florida, Gainesville.

Fowler, S., and Seret, B. (2010) *Shark Fins in Europe: Implications for Reforming the EU Finning Ban*, European Elasmobranch Association and IUCN Shark Specialist Group, Vancouver.

Freeman, L.A., Kleypas, J.A., and Miller, A.J., (2013) *Coral Habitat Response to Climate Change Scenarios*, Plos One, <<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0082404>>

Friedrich, L.A., Jefferson, R., and Glegg, Gillian. (2014) "Public perceptions of sharks: Gathering support for shark conservation", *Marine Policy*, vol. 47, pp. 1-7

Grogan, E.D., Lund, R. and Greenfest-Allen, E. (2012) "The origin and relationships of early chondrichthyans", in J.C. Carrier, J.A. Musick and M.R. Heithaus (eds), *Sharks and Their Relatives*, 2nd edn, CRC Press, Boca Raton, FL.

Heinicke, M. P., Naylor, G. J. P. and Hedges, S. B. (2009) ' *Cartilaginous fishes (Chondrichthyes)*', in S.B. Hedges and S. Kumar, *The Timetree of Life*, Oxford University Press, Oxford.

Hepp, J. and Wilson, E.G., (2014) "Shark Conservation Efforts: As Diverse as sharks themselves", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

- Horton, C. (2013) "Is the Shark-fin Trade Facing Extinction?", *The Atlantic* <www.theatlantic.com/china/archive/2013/08/is-the-shark-fin-trade-facing-extinction/278591/>
- IUCN (2003) "Shark Finning - Information Paper" IUCN, Malaga. <http://www.uicnmed.org/web2007/CD2003/conten/pdf/shark_FINAL.pdf>
- Johannes, R.E. (1978) "Traditional Marine Conservation Methods in Oceania and their Demise", *Annual Review of Ecological Systems*, vol. 9, pp. 349-364.
- Kellert, S. R. 1994. Public Attitudes toward Bears and Their Conservation. Pages 43-50. International Association of Bear Research and Management.
- Kellert, S. R., Joyce K. Berry. 1980. Knowledge, Affection and Basic Attitudes Toward Animals in American Society: Phase III. in U. F. a. W. Service, editor. US Department of Interior.
- Lack, M. and Sant, G. (2008) "Confronting Shark Conservation Head On!", *TRAFFIC International*, <www.traffic.org/species-reports/traffic_species_fish4.pdf>
- Lack, M. and Sant, G. (2011) "*The Future of Sharks: A Review of Action and Inaction*", TRAFFIC International, Cambridge, and the Pew Environment Group, Washington, DC.
- Llopis, Glenn. "6 Brand Strategies Most CMOs Fail to Execute". Forbes. 10 March 2010. <<http://www.forbes.com/sites/glennllopis/2014/03/10/6-brand-strategies-that-most-cmos-fail-to-execute/2/>>
- Mary Lack, (2014) "Challenges for international governance", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.
- Momigliano, P. and Harcourt, R., (2014) "Shark Conservation, governance and management: The science-law disconnect", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.
- Mondo, K., Hammerschlag, N., Basile, M., Pablo, J., Banack, S.A., and Mash, D.C. (2012) "Cyanobacterial Neurotoxin B-N-Methylamino-L-alanine (BMAA) in Shark Fins", *Marine Drugs*, vol. 10, pp. 509-520.
- Musick, J.A., Burgess, G., Cailliet, G., Camhi, M. and Fordham, S. (2000) "Management of sharks and their relatives (Elasmobranchii)", *Fisheries*, vol. 25, pp. 9-13.
- Muter, B.A., Gore, M.L., Gledhill, K.S., Lamont, C. and Huveneers, C. (2013) "Australian and US news media portrayal of sharks and their conservation", *Conservation Biology*, vol. 27, no.1, pp. 187-196.

Natalie Klein. (2014) "The existing global legal regimes", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

Neff, C. (2012) "Australian beach safety and the politics of shark attacks", *Coastal Management*, vol. 40. no. 1, pp. 88-106

Neff, C. and Hueter, R. (2013) "Science, policy, and the public discourse of shark "attack": a proposal for reclassifying human-shark interactions", *Journal of Environmental Studies and Sciences*, vol. 3, no. 1, pp. 65-73.

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

NOAA Fisheries. "What is Bycatch?"

<http://www.nmfs.noaa.gov/by_catch/bycatch_whatism.htm>

NOAA Fishwatch (2015). U.S. Seafood Facts. <<http://www.fishwatch.gov/>>

O'Bryhim, J. R., (2009) "Public Knowledge, Attitudes, and Behavior towards Sharks and Shark Conservation", Master of Science Thesis. *George Mason University*.

OCEANA. 2007. Shark Bycatch. Oceana.

Olson, R., (2011) "If a Frond Falls in the Kelp Forest (does it make any sound?): The Pew Oceans Report as a Case Study of Communicating Ocean Conservation", in Jackson, J. B. C., Alexander, K.E., and Sala, E., (eds) "*Shifting Baselines: The Past and the Future of Ocean Fisheries*", Island Press, Washington, DC

Pew Environment Group (2012) "*Navigating Global Shark Conservation: Current Measures and Gaps*"

<www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/Navigating%20Global%20Shark%20Conservation_Current%20Measures%20and%20Gaps%2007%2006%2012.pdf>

Pew Environment Group (2012) "*How World Leaders Are Protecting Sharks*".

<[www.pewenvironment.org/uploadedFiles/PEG/Publications/Other_Resource/HowWorldLeadersAreProtectingSharksFinal%20\(1\).pdf](http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Other_Resource/HowWorldLeadersAreProtectingSharksFinal%20(1).pdf)>

Pramod, G., Pitcher, T. J., Pearce, J. and Agnew, D. (2008) *Sources of Information Supporting Estimates of Unreported Fishery Catches (IUU) for 59 Countries and the High Seas*, Fisheries Centre Research Report 16, No. 4.

Qin, A. (2013) "Taste for shark fin fades slightly in China", *New York Times*, 28 January. <www.nytimes.com/2013/01/29/world/asia/taste-for-shark-fin-fades-slightly-in-china.html>

- Simpfendorfer, C.A., Heupel, M.R., White, W.T., and Dulvey, N.K. (2011) "The importance of research and public opinion to conservation management of sharks and rays: a synopsis", *Marine and Freshwater Research*, vol. 62, pp. 518-527.
- Spruill, V. N. 1997. U.S. Public Attitudes Toward Marine Environmental Issues. *Oceanography* 10.
- Stevens, J. D., R. Bonfil, N.K. Dulvy, and P.A. Walker. 2000. The Effects of Fishing on Sharks, Rays, and Chimeras, and the Implications for Marine Ecosystems. *ICES Journal of Marine Science* 57:476-494.
- Strother, J. and Kollenberg, M. (2013) "Shark fin consumption declines in Hong Kong", *Voice of America*, 20 June. <www.voanews.com/content/shark-fin-consumption-declines-in-hong-kong/1685768.html>
- Techera, E. J. (2012) "Fishing, Finning and Tourism: Trends in Pacific Shark Conservation and Management", *International Journal of Marine and Coastal Law*, vol. 27, no. 3, pp.597-621
- Techera, E.J., and Natalie Klein. *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York.
- Thompson, T. L., and J. J. Mintzes. 2002. Cognitive structure and the affective domain: on knowing and feeling in biology. *International Journal of Science Education* 24:645-660.
- Topelko, K.N., and Dearden, P. (2005) "The shark watching industry and its potential contribution to conservation", *Journal of Ecotourism*, vol. 4, no. 2, pp. 108-128.
- TRAFFIC East Asia.(2005) "Shark Product Trade in Hong Kong and Mainland China and Implementation of the CITES Shark listings", <<http://www.iccs.org.uk/wp-content/papers/Clarke2005TRAFFICreport.pdf>>
- Walsh, S.M., Hamilton, S.L., Ruttenberg, B.I., Donovan, M.K., Sandin, S.A. (2012) "Fishing top predators indirectly affects condition and reproduction in a reef-fish community", *Journal of Fish Biology*, vol. 80, pp. 519-537
- WildAid (2007) "End of the Line?: Global threats to sharks". <www.wildaid.org/sites/default/files/resources/EndOfTheLine2007US/pdf>
- Williams, John. "The Basics of Branding". Entrepreneur.com. 2014. <<http://www.entrepreneur.com/article/77408>>
- Winnie Jr, J.A. (2012) "Predation risk, elk and aspen: tests of a behaviorally mediated trophic cascade in the Greater Yellowstone Ecosystem", *Ecology*, vol. 93, pp. 2600-2614.

Wirsing, A.J., and Ripple, W.J. (2010) "A comparison of shark and wolf research reveals similar behavioral responses by prey", *Frontiers in Ecology and the Environment* <www.cof.orst.edu/leopold/papers/Wirsing_Ripple_2010.pdf>

Wolper, Jon. "The Shark Attack that Shook the 1700's", *Narratively*.
<<http://narrative.ly/stories/the-shark-attack-that-shook-the-1700s/>>

Worm, B., Cosandey-Godin, A., Davis B., (2014) "Fisheries management and regulations", in Techera, E.J., and Klein, N (eds), *Sharks: Conservation, Governance and Management*. 2014. Routledge, New York, New York.

Worm, B., Davis, B., Ketteimer, L., Ward-Paige, C.A., Chapman, D., Heithaus, M.R., Kessel, S.T., and Gruber, S.H. (2013) 'Global catches, exploitation rates and rebuilding options for sharks', *Marine Policy*, vol. 40, pp. 194-204

WWF (2013) "Companies say no to shark fin".
<www.wwf.org.hk/en/whatwedo/footprint/seafood/sharkfin_initiative/companies_say_no_to_shark_fin>

Xu, P., Zeng, Y., Fong, Q., Lone, T., and Liu, Y. (2012) "Chinese consumers' willingness to pay for green- and eco-labeled seafood", *Food Control*, vol. 28, pp. 74-82.