AN INTERDISCIPLINARY EXAMINATION OF WHALEWATCHING IN STELLWAGEN BANK NATIONAL MARINE SANCTUARY AND HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY

by

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PREFACE

The original idea for this project started out innocently enough. The idea was to find a topic that involved education, marine policy, and "charismatic megafauna." I wanted to examine an issue that involved both education and the oceans because I wanted to produce a final product that incorporated both disciplines of my marine education concentration. My third requirement for my topic, "charismatic megafauna," was added simply because I love the phrase. I have even been known to include it in conversations where the phrase has no relevance, such as, "I believe copepods are the 'charismatic megafauna' of the plankton world." To avoid the problem of uninvited "charismatic megafauna" showing up in my research, I set out to find a topic that addressed it directly. Therefore, at the end of summer 2004, Katy Robinson Hall, professor of Marine Policy at Williams Mystic and my thesis advisor, suggested that I look at whalewatching. Whalewatching matched all three of my established criteria, making it a perfect topic.

I walked out of Katy's office at the end of my first conversation with her feeling pretty confident about the topic I'd selected. I was going to research whales. Yes, this is all I had decided for sure when I left Katy. Once I started to

research I realized that there were many, many things I could learn about whales, and there was no way that I could learn all of them in less than nine months. So, I started to narrow the focus of my research to whalewatching policy in marine sanctuaries. I realized two things at this point: (1) there are a lot of marine sanctuaries in the world, and (2) I had some more work to do in order to get to a workable topic.

After many more tries, I finally decided to focus on three main points: 1) the impact of whalewatching on whales in Stellwagen Bank National Marine Sanctuary and Hawaiian Islands Humpback Whale National Marine Sanctuary; 2) the current policies in the two sanctuaries protecting whales from whalewatchers; 3) the way commercial and recreational whalewatchers are educated about whalewatching policies and the way commercial whalewatching companies educate their passengers. I also decided to limit my research to whalewatching from boats, not planes, and in the United States, not the rest of the world.

After settling on my topic, it occurred to me that I could not talk about whalewatching without also including some history on whales and a little bit of whale biology and a tad about marine ecotourism, and… well, you see I realized that I was going to have to take a truly interdisciplinary approach. So, what I present to you now are the results of an interdisciplinary examination of whales and whalewatching.

THE PURPOSE AND METHODS

On the fifth day "God created great whales, and every living creature that moveth, which the waters brought forth abundantly," and so it was that whales populated the world's oceans in vast numbers until recent times.[1] The number of whales has been declining since the Norse figured out that whales could be hunted to produce food between 800-1000 AD. A couple of hundred years later the Basques realized that humans could also produce oil and baleen from whales that could be sold and traded on the commercial market. As knowledge of what could be produced from whales spread to other European countries, hunting intensified. Early hunts targeted whales that were easy to catch and slaughter, but, as the human population grew, so did the demands for whale products. Hunts grew more extreme to meet the growing demand. Soon, with fewer whales in the world's oceans, whaling voyages grew longer and traveled farther. Then, before whalers could believe, there were very few easy-to-catch whales left, leading whalers to develop technologies that allowed them to hunt these more elusive whales.

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[1] The Book of Genesis, 1:21.

In time, because whale populations were getting smaller even the hardest to catch whales became difficult to find in any ocean around the world. Humans had captured and killed the majority of the world's whales to feed the human appetite for whale oil and baleen. It was only once the majority of the planet's great whale population was teetering on the brink of extinction that humans began to recognize the enormous consequences of their actions against whales. So, hunting of whales slowed down, and scientists and environmentalists became interested in learning about whales and preserving them. A desire to reverse the damage that they had done to whales led to many changes in humans' treatment of whales.

This study provides an interdisciplinary investigation of the evolution of the regulation and policy that has been adopted to better preserve and protect whales in the United States' waters. In researching this paper my first objective was to find out why marine sanctuaries are so special and whether, because of their elevated status, they should be providing better protection to whales within their borders. I also wanted to learn how sanctuaries go about educating commercial and recreational whalewatching operators and the general public about the importance of marine sanctuaries and whales. In addition to how the sanctuaries educate these various constituencies, I was interested in how commercial whalewatching operators educate their customers. Finally, I hoped to understand how sanctuary users perceive a sanctuary's effectiveness in protecting the natural resources within its borders. Based on this research and analysis, I

will synthesize my findings to create a set of recommendations for what sanctuaries can do to improve their education programs and, ultimately, better protect whales.

This study focuses on two of the thirteen United States National Marine Sanctuaries, Stellwagen Bank National Marine Sanctuary (Stellwagen) and Hawaiian Islands National Marine Sanctuary (Hawaiian Islands). Investigating two sanctuaries allows for an in-depth examination of each one as well as comparisons between the two. The study presents to the reader a wide array of information collected from government documents, peer-reviewed journals, books, various media outlets, and, most importantly, primary research, including personal interviews and correspondences.

For the personal interviews I spoke and corresponded with members of the Sanctuary Advisory Committee (SAC) for both Stellwagen and Hawaiian Islands. All sanctuaries have SAC's, which make recommendations and provide guidance to sanctuary managers. SAC's are generally comprised of diverse groups of people, including representatives of governmental agencies and organizations interested in the issues that affect each sanctuary. Based on their individual expertise and research in a variety of fields, SAC members make recommendations to sanctuary managers. The members are interested because the marine mammal guidelines and regulations that are created impact all sanctuary users. Each member of the SAC represents a field in which s/he has a

wealth of knowledge.[2] SAC members represent most of the opinions in the whalewatching debate.

The Stellwagen SAC consists of fifteen voting members and two non-voting governmental members. There are also fourteen alternative voting members and five alternative non-voting members. The voting members represent research (2), conservation (2), education (2), marine transportation, recreation, whale watching, fixed-gear commercial fish, mobile-gear commercial fish, business/industry, and at-large (3) opinions. All members have a vested interest in the whales that migrate through Stellwagen Bank because policies created to control humans' behavior around whales affect all sanctuary users.

A scientist who focuses on the study of whales and conducts research into the effects of whalewatching fills one of the research representative positions. Currently, the primary member filling this seat is Mason Weinrich of The Whale Center of New England. The alternate member for this seat is Porter Hoagland, a researcher at the Woods Hole Oceanographic Institute. The conservation members are all employees of organizations that are working to protect whales and their natural habitats. The organizations represented are the Ocean-Conservancy, the Conservation Law Foundation, the International Fund for Animal Welfare, and the International Wildlife Coalition. The education

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[2] Naomi McIntosh, "The Hawaiian Islands Humpback Whale National Maine Sanctuary Advisory Council: Expanding Protection through Community Involvement," Endangered Species Update 16, No. 5 (1999): 103.

representatives on SAC come from the Center for Marine and Coastal Studies, local universities, and the Waquiot Bay National Estuarine Research Program. The marine transportation, recreation, business, industry, and whale watching representatives are from companies that provide services inside of Stellwagen, and have wide-ranging concerns about the impact of more stringent protection of whales on their businesses and livelihood. The fixed and mobile gear commercial fishermen also have an interest in how new regulations to protect whales would impact their fishing methods. At-large members provide insight on community feelings towards the sanctuary policies. The non-voting members consist of state and federal government officials who are involved in enforcing laws and regulations. The government agencies that are represented are the United States Coast Guard, National Marine Fisheries Service, New England Fisheries Management Council, and the Massachusetts Environmental Police.

The Hawaiian Islands SAC consists of twenty-four voting members, with ten alternates and six non-voting members. Of the twenty-four voting members, fifteen of them are non-governmental representatives. Four of the fifteen non-governmental positions are filled by residents from Hawai‘i County, Honolulu County, Kaua‘i County, and Maui County. The conservation representative is Lou Herman, director of the Kewalo Basin Marine Mammal Laboratory. Herman has been studying humpback whales in Hawaii since 1975. Reginald White, the whalewatching representative, is very involved in marine activities in Hawaii, and he has been a professional involved with maritime activities since 1949. Michael

Stanton is the tourism representative. He works for Atlantis Submarines, a company based in Kona. The research representative, Marc Lammers, is President and Research Director of Oceanwide Science Institute. Lammers is interested in the ecology of marine mammals. The education representative is Jeanne Russel. She is a teacher at the Island School. A business and commerce representative, a citizen at large representative, a commercial shipping representative, an ocean recreation representative, and a native Hawaiian representative fill the other non-governmental positions.

The remaining nine voting positions are occupied by government officials representing the State of Hawai‘i Department of Land and Natural Resources, State of Hawai‘i Department of Business and Economic Planning (2), State of Hawai‘i Department of Health, Western Pacific Regional Fishery Management Council, U.S. Army Corps of Engineers, State of Hawai‘i Office of Hawaiian Affairs, State of Hawai‘i Department of Transportation, and United States Coast Guard. In addition to the twenty-four voting members there are six non-voting positions that are filled by people associated with Fagatele Bay National Marine Sanctuary (Tutuila, American Samoa), National Marine Fisheries Service, Hawaiian Islands Humpback Whale National Marine Sanctuary, Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, and State of Hawai‘i Department of Land and Natural Resources.

All participants were asked many questions related to their field of expertise, whalewatching, and education during the interviews. Between

individuals some of the interview questions varied. In addition to the specific questions posed to each interviewee about their field, seven general questions were included in every interview conducted (See Appendix A- Interview Questions). The seven questions allowed me to gauge how many different opinions about whalewatching policies, education, and sanctuaries there were. After conducting interviews and finishing my research, I came to the conclusion that whalewatching regulations and policies governing the Hawaiian Islands and Stellwagen are not sufficiently protecting whales. I believe that revised policies will better prevent harassment of whales due to whalewatching. Additionally, as part of enforcing the new regulations, a more effective system for educating both commercial and recreational whale watchers must be implemented.

A HISTORY OF HUMAN-WHALE INTERACTIONS

The history of human exploitation of whales is a story of the "tragedy of the commons." The "tragedy of the commons" – first described by Garrett Hardin in his landmark article of the same name that appeared in the journal Science in 1968 – results from everyone wanting to exploit a public resource to the greatest extent possible.[3] Until the twentieth century, the world's whale population was unregulated and open to any person who chose to hunt whales. Many people did decide to do so, motivated by the substantial profits that could be made in the whaling business.[4]

In order to understand why some whales were targeted by hunters while others were not, it is important to know a little bit of whale biology. There are nine main families of cetaceans: Balaenidae, Balaenopteridae, Eschrichtiidae, Physeteridae, Monodontidae, Ziphiidae, Delphinidae, Phocoenidae, and Platanistidae. Balaenidae, the right whales, Balaenopteridae, the rorquals, and Eschrichtiidae, the gray whales, are all members of the suborder Mysticeti or the

[3] Garrett Hardin, "The Tragedy of the Commons," Science 16 (1968):1243.
[4] K. Radway Allen, Conservation and Management of Whales (Seattle: A Washington Sea Grant Publication Distributed by University of Washington Press, 1980), 10.

baleen whales.[5] When killed, the baleen whales provide baleen or whalebone, which in fact is not bone but keratin. The baleen is what Mysticeti use to strain krill and other small food out of the ocean to eat. The other six families belong to the suborder Odontoceti, the toothed whales.[6] This group of whales, which includes the sperm whale, provides no baleen, but theses whales do provide teeth, which are used for scrimshaw. The sperm whale also produces a superior type of oil, spermaceti, from the fluid in the whale's head. The species of whale hunted at a given period in time depended heavily upon both economics – the demand for specific whale-based products – and the technology available to hunters.

Whaling-The Early Years

The first evidence of a culture taking advantage of the abundant whale population available to them was with the Norsemen. These early whalers hunted off of the Tromsö coast.[7] It is believed that the Norsemen started hunting whales for subsistence between 800 and 1000 AD.[8] The whales also provided them with oil for lighting and baleen for boat building and jewelry making.[9] During this time period, from 800-1000 AD, it appears that whaling may have been unique to the Norse culture.

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[5] Rus Hoelzel, ed., Marine Mammal Biology: An Evolutionary Approach, (Oxford: Blackwell Science, 2002), 6-10.
[6] Ibid., 10.
[7] Richard Ellis, Men and Whales (New York: The Lyon Press, 1999), 41.
[8] Allen, 10.
[9] Ellis, Men and Whales, 41.

It was not until the beginning of the thirteenth century that whaling began to spread, when the Basques began to practice whaling in order to provide European countries with smokeless oil to burn and whalebones for clothing. The Basques started hunting whales in the Bay of Biscay and eventually traveled as far as Newfoundland in pursuit of the great leviathans.[10] Though the Basques first started whaling to provide food and oil for their own use, it was not long before the Basques turned whaling into an industry to serve other European countries. The Basques created markets for whale meat and blubber.[11] They turned the blubber into oil, which was in turn used to make soap, to tan hides, to make paint, and to burn for lighting.[12] On Lenten days, the Basques would consume whale meat. Whale meat also served as a cheap food source for the poor. The Basques pursued whales until it became uneconomical, and in this process they may have caused the first and only extinction of a modern species of whale, the Atlantic gray whale.[13]

Interested Dutch and British soon began launching voyages to the whaling grounds with the help of Basque harpooners. Early whalers using harpoons and sailing vessels could capture only the slowest of the whales and could only process whales that floated when killed.[14] This left

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[10] Richard Ellis, The Empty Ocean (Washington, D.C.: Island Press, 2003), 238.
[11] Ellis, Men and Whales, 44.
[12] Ibid., 44.
[13] Ibid., 45.
[14] Ellis, The Empty Ocean, 238.

only the Balaenidae and Eschrichtiidae to hunt, and by the mid-1600s Basque whaling had decimated the right whale population in the Bay of Biscay. While the precise quantity of whales killed by Basque whalers is unknown, right whales disappeared from the Bay of Biscay while the Basques were still whaling and have never returned.[15] The end of Basque whaling did not mean the end of whaling in Europe; the Dutch, French, and English all continued to whale.

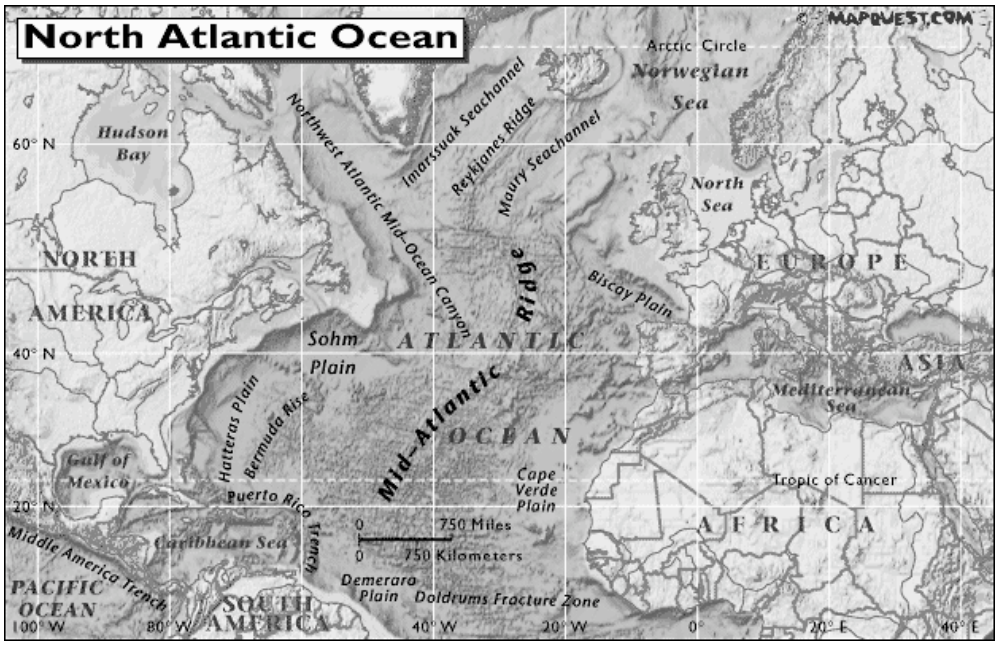

Figure 1- Map of North Atlantic[16]

The practice of commercial whaling expanded as European countries colonized other parts of the world in the fifteenth through nineteenth centuries. On December 21, 1620, the English colonists aboard the Mayflower spotted right

[15] Kieran Mulvaney, The Whaling Season: An Inside Account of the Struggle to Stop Commercial Whaling (Washington, D.C.: Island Press/Shearwater Books, 2003), 51.
[16] North Atlantic Ocean [online resource] accessed 2 April 2005, available from www.mapquest.com.

whales in the waters around Cape Cod and decided to set up their colony in Plymouth rather than continuing on to Virginia.[17] The whales factored into the Pilgrims' decision to stay in Massachusetts because they believed where there were whales, there would be fertile fishing grounds.[18] With the Pilgrims, the practice of whaling for profit arrived at the eastern seaboard of what would later become the United States of America. Before the arrival of colonists, Native American tribal peoples in the Pacific Northwest such as the Makah and Salish had been hunting whales as a source of food. The Wampanoag, Nauset, Rockaway, Meroke, and Massapequa tribes of the northeast did not actively hunt whales, but would consume the meat of beached whales.[19]

Beginning in the early seventeenth century, colonists on Cape Cod and Long Island began to hunt right whales and humpback whales that swam close to the coast in order to produce oil and baleen to trade with England.[20] New Englanders hunted these two species of great whales because they moved slowly, and they were buoyant. The right whale is so named because it was the "right" whale to kill.[21] Right whales produced a poor quality of oil that colonists did not find ideal to use in candles or soaps, but the oil was traded with England, where it

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[17] Ellis, Men and Whales, 99.
[18] Ibid., 99.
[19] Daniel Vickers, "The First Whalemen of Nantucket," The William and Mary Quarterly 3rd ser. Vol.40, No.4 (1983): 561.
[20] Ibid., 562.
[21] Mulvaney, 51.

was used to light the streets of London. Right whales also provided baleen that dressmakers used in women's clothing.[22]

In the late seventeenth century, colonists on Nantucket became involved in the whaling industry. From the 1690s until the 1720s, Nantucket colonists pursued right whales that swam close to shore, because early whaling took place from on-shore. A lookout positioned at a shore station would sight a whale, and the shore station would send out a long boat to kill the whale. The long boat would then bring the whale back to shore to be "tried out".[23] Trying a whale is the process by which the blubber is rendered, creating oil. As right whales and humpbacks became sparser in near-shore waters, colonists built and outfitted sloops for longer voyages. These voyages went as far as the Grand Banks and Davis Strait. The sloops were equipped with try works so that the whalers could process dead whales aboard the vessel.[24] The extensive whaling that occurred in the North Atlantic from the 1600s until the late 1700s caused the right whale population to collapse.[25]

In 1712, a storm blew Captain Christopher Hussey's whaling vessel farther from the shore of Nantucket than it normally went. While this vessel was

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[22] Vickers, 562.
[23] Robert G. Albion, William A. Baker, and Benjamin W. Labaree, New England and the Sea, (Mystic, Connecticut: Mystic Seaport Museum, Inc., 1994), 30.
[24] Ibid., 31.
[25] Allen, 12.

venturing back across the waters off the coast of New England to Nantucket, it came across a sperm whale and killed it. From this experience whalers on Nantucket learned that sperm whales produced a much higher quality of oil than the right whale. People could use the oil from sperm whales to make fine quality candles and soap, to make steel, and to lubricate machinery. From Captain Hussey's mishap and discovery, the sperm whale industry was born.[26]

As a result of the over-hunting of whales along the New England coast and in most of the Atlantic Ocean, and because of whalers' desire to catch sperm whales, whaling voyages needed to be longer and longer, and whalers traveled farther and farther from their home ports. By the early 1800s, vessels from New England were regularly visiting Hawai'i on their way to more exotic locations while they were out on three-year expeditions. There would be as many as 500 to 800 ships in the ports of Hawai'i at any point in time during these years.[27]

In the mid-1800s the the right whale stocks in the Southern Hemisphere collapsed.[28] Whalemen had continued to hunt right whales after the discovery of the sperm whale because sperm whales do not supply baleen, which was still in demand for making corsets and hoopskirts.[29] Also, in 1846, the size of the American whaling fleet peaked; there were 736 whaling vessels in the United

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[26] Ellis, The Empty Ocean, 237.
[27] Allen, 11.
[28] Ibid., 12.
[29] Ellis, Men and Whales, 135.

States.[30] In the late eighteenth century and through the nineteenth and twentieth centuries whaling was a global business. Voyages out of New England went as far as Australia to capture whales, because whale stocks were so depleted in whaling grounds closer to American shores. The more depleted the whale stocks became, the longer it took whaling voyages to fill their holds.

In or around 1860, the whaling industry began shifting its focus away from sperm whales. It is not clear whether this was a product of the collapse in sperm whale stocks or because sperm whale oil was simply no longer in high demand following the discovery of petroleum in 1859.[31] Between 1863 and 1864, the amount of sperm and whale oil consumed by the United States dropped from 3,090,000 gallons to 1,267,000 gallons, while the amount of petroleum consumed rose from 155,874 gallons to 22,064,000 gallons.[32] The discovery of petroleum did not signal the end of whaling, although it did push the whaling fleet to modernize. As petroleum caused the price of whale oil to drop, whalers needed to catch more whales in order to make a profit.[33]

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[30] Albion, Baker, and Labaree, 116. There are different statistics on the number of whaling vessels that were in the United States at the peak of whaling. The numbers range from 729 (Allen, 12) to 736. The number of individuals working in the whaling industry also differ greatly between sources; in New England and the Sea it is stated that 12,000 people worked in the whaling industry in 1860, while in Conservation and Management of Whales it is stated that 70,000 people worked in whaling at it's peak.
[31] Allen, 11.
[32] Albion, Baker, and Labaree, 118.
[33] Ellis, Men and Whales, 234.

Technology in the Hunt

Many technological changes took place during the height of the whaling era, from 1800-1900, which had enormous impacts on the efficiency of the whaling fleet. The toggle harpoon, invented by Lewis Temple, was the first major invention that impacted the whaling fleet.[34] The toggle harpoon was a major improvement upon the fixed head harpoon that all whalers had used since the beginning of European whaling. A fixed head harpoon would pierce a whale's skin but then would commonly slip out in the chase that followed the harpooning. The Temple toggle harpoon would go into the whale's body the same way as a fixed harpoon, but once the whale began to pull on the harpoon, a small piece of wood that had been holding the harpoon straight would snap, and the toggle would turn on its side. The turning of the toggle on the harpoon would create a ninety-degree angle between the toggle and the whale's skin making it much harder for the harpoon to slip out of the whale.[35] In an article that was published in the Whalemen's Shipping List, and Merchants' Transcript on May 31, 1853, a whaleman reports that "In the capture of these twenty-one whales but *eight harpoons* were used, and not one lost… The harpoons used were toggle-irons."

[34] The Kendall Institute, "Lewis Temple and Harpoons" [online resource], accessed 1 December 2004, available from http://www.whalingmuseum.org/kendall/heros/temple/index.html.
[35] Sidney Kaplan, "Lewis Temple and the Hunting of the Whale," The New England Quarterly 26, No.1, (1953): 81.

The fact that the whaling voyage used only eight harpoons is amazing because the average whale ship was supplied with 150 harpoons for a four-year voyage.[36]

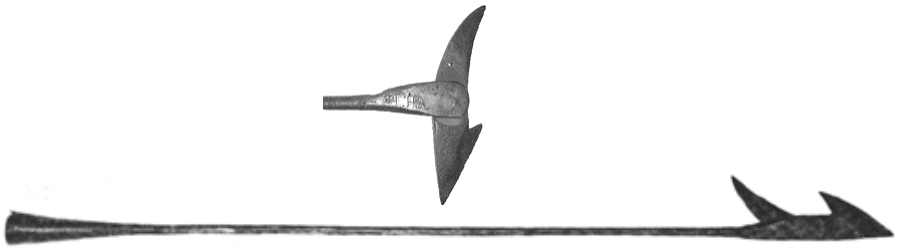

Figure 2- Temple Toggle Harpoon[37]

Svend Føyn, a Norwegian, created the next major invention in 1864. Føyn invented the harpoon gun and explosive harpoon. Whalers had the luxury of being able to hunt all species of great whales with harpoon guns. Whalemen no longer need to worry about hunting the floating species of whales because the harpoon gun attached to the bow of the vessel. Once the whale died the whaling vessel could immediately retrieve it. Also, the explosive harpoon caused more damage to the whale than a traditional or toggle harpoon, because it struck the whale with great force and caused more extensive internal injuries upon impact. The harpoon gun and explosive harpoon also cut down on the amount of time it took for a whale to die. Traditional whaling techniques, which used a harpoon, a

[36] Thomas G. Lytle, Harpoons and Other Whalecraft, (New Bedford, Massachusetts: The Old Dartmouth Historical Society, 1984), 35-36.

lance, and rowers, took many, many hours to kill a whale. In one account of a traditional hunt, it took a sperm whale twenty-three hours and fifty minutes to die.[38] It took just fifteen to twenty minutes for a whale to be killed with the explosive harpoon and harpoon gun.[39]

Whaling ships began the transition from sail power to steam power in the mid-1800s. Steam-powered ships were fast enough to catch any species of whale. The faster moving, sinking species of whales were not hunted prior to these inventions. Before the era of steam ships, the small rowing boats used had not been able to keep up with the faster whale, and the human powered boats did not have the strength to bring a sinking whale back to the mother ship to be processed.[40] The combination of the harpoon gun, explosive harpoons, and steam powered vessels allowed whalers to catch any type of whale species that they chose to pursue. Before these inventions whalers hunted only five of the ten great whales. These five, the right, sperm, humpback, gray, and bowhead whales, were the slowest and most buoyant of the great whales. After these inventions were introduced, whalers could hunt the other five great whales, which

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[37] Thomas G. Lytle, "Toggle Irons" [online resource], accessed 2 April 2004, available from http://www.whalecraft.net/Toggle_Irons.html.
[38] David Day, The Whale War (San Francisco: Sierra Club Books, 1987), 147.
[39] Phillips, 84.
[40] Glenn Gordinier, Lecture on History of Whaling at University of Massachusetts Field Station on Nantucket, 2 April 2004.

are the blue, fin, sei, Bryde's and minke whales.[41] These inventions led to the Scandinavians being able to kill one thousand fin whales a year by the 1880s.

Armed with the new whaling technologies, voyages set off towards a new hunting ground, Antarctica. Whalers descended upon Antarctica after hearing reports of waters filled with cetaceans, and because it was the only unexploited whaling ground left in the world. The first commercial whaling expedition to Antarctica led by Captain Anton Larsen of Norway took place in 1904. Captain Larsen set up the whaling station on South Georgia, Antarctica.[42] In the 1904 season 183 whales were killed: 149 humpback whales, sixteen fin whales, eleven blue whale, and seven right whales. Between 1904 and 1910, the whaling station on South Georgia took 28,408 whales. The species breakdown of the whales taken was 1,738 blue whales, 4,776 fin whales, and 21,894 humpback whales.[43] Humpback whales are the slowest of the rorquals and the easiest to hunt from shore stations, and for this reason, they constituted the largest percentage of the catch.

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[41] James T. Carlton, Lecture on Species of Whales at University of Massachusetts Field Station on Nantucket, 2 April 2004.
[42] Mulvaney, 53.
[43] Ibid.

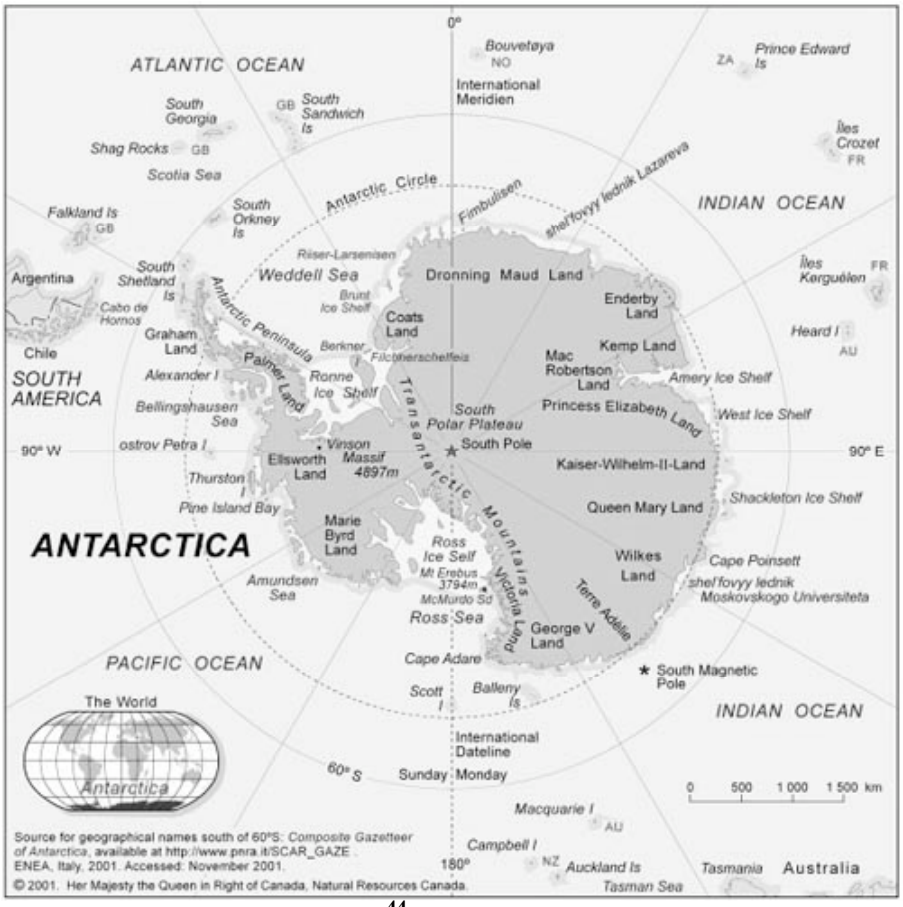

Figure 3- Map of Antarctica[44]

The last major technological innovation that benefited the whaler was the invention of the modern whaling factory ship in the early 1920s. Modern whaling factory ships have stern slipways, which allow the entire whale carcass to be brought on board, butchered, and tried. The invention of the modern whaling factory ship was the beginning of the end of whaling because it allowed so many whales to be captured and killed with so little effort. In 1925, a modern whaling

[44] Only-Maps, "Map of Antarctica" [online resource], accessed 2 April 2005, available from http://www.only-maps.com/antarctica-map.html.

factory ship, *Lancing*, from Norway was sent to spend the whaling season in Antarctica for the first time. From 1920 to 1931 with the invention of the factory ships and because of the great demand for whale oil, production of whale oil increased tenfold.[45] Between 1925 and 1930, Argentina, Denmark, Germany, the United States, and Britain became involved in factory ship whaling in Antarctica.[46]

By 1965, the entire commercial whaling fleet could only find twenty blue whales off Antarctica. What makes this figure so astonishing is that just thirty-four years earlier whalers had killed 1,000 blue whales off the port of South Georgia.[47] Modern whaling ships killed 46,000 whales in Antarctica during the 1937-1938 season. In the 1964-1965 whaling season whalers killed just 30,000. The huge drop in the number of whales caught is one sign of the massive devastation that factory ships caused in the Antarctic.[48]

Attempts at Conservation

In 1946, the United States marked a major shift in governmental policies when it took steps to change the goal of conservation from a means to protect the whaling industry to a way to preserve the whale population. The first of these steps was the organization of the International Whaling Conference.[49] Fifteen

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[45] Howard Scott Schiffman, "The Protection of Whales in International Law: A Perspective for the Next Century," The Brooklyn Journal of International Law Vol. XXII: 2 (1996): 3 [journal online], accessed 27 September 2004, available from http://web.lexis-nexis.com.
[46] Ellis, Men and Whales, 365.
[47] Mulvaney, 54.
[48] Allen, 12.
[49] Ibid., 9.

countries came to Washington, D.C. to attend this Conference.[50] The Conference resulted in Australia, Canada, Denmark, France, Iceland, Mexico, the Netherlands, New Zealand, Norway, Panama, South Africa, Sweden, Great Britain, the United States, and the Soviet Union, creating the International Convention for the Regulation of Whaling (Convention), which was signed on December 2, 1946 and went into effect on November 8, 1948.[51] The main purpose of the Convention was to develop a plan to guarantee the indefinite continuation of whaling. To meet this goal the Convention established the International Whaling Commission (IWC).

During the early years of the IWC, between 1948 and 1972, the organization was best described as a "big game shooting club" where members met once a year, before the start of the whaling season, to set quotas on the Blue Whale Units that could be caught that season.[52] Blue Whale Units (BWUs) were a measurement scale that made two-and-a-half humpbacks or six seis equal to one blue whale.[53] The BWU system allowed the IWC to set the number of units to be taken, but not the number of whales or country-by-country quotas.[54] The quotas that were set were a "gentleman's agreement" to play by the rules.[55] The biggest

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[50] "International Whaling Commission" [online], accessed 7 December 2004, available from www.iwcoffice.org.
[51] Mulvaney, 116.
[52] Day, 27.
[53] David Hunter, James Salzman, and Durwood Zaelke, International Environmental Law and Policy Second Edition (New York: Foundation Press, 2002), 978-979.
[54] Ellis, Men and Whales, 404.
[55] Day, 27.

problem that the IWC faced was that the gentlemen were not sticking to the agreed upon numbers, and there was no enforcement mechanism by which the IWC could force individual countries to comply with the agreed upon quotas.[56] So, despite the early attempts at conservation, whalers killed record numbers of whales in the1950s and 1960s. It was not until the early 1970s that the IWC finally started to play a role in conserving whales.[57]

The progression of whale species caught by whalers over time exemplified the urgent need for quotas. When looking at the species caught over time one sees a trend moving from whalers only catching the most economically desirable whales to whalers catching less desirable and less economically valuable whales.[58] The whaling industry technically collapsed well before the invention of any modern whaling technologies. By the time modern whaling started only the less desirable species of whales were left to hunt, but within years of the start of modern whaling even the less desirable species were on the brink of collapse. This quick decline in stock numbers occurred because of the ability of factory ships to kill many whales in a short period of time. Between 1792 and 1913, the New England whaling fleet killed 36,908 whales. Between 1910 and 1966, the Soviet and Japanese modern whaling fleets killed 261,505 whales. In short, it took a small portion of the world's modern whaling fleet just fifty-six years to kill

[56] Ibid.
[57] Schiffman, 5.
[58] Allen, 12.

almost eight times as many whales as it took 744 Yankee whaling vessels 1,665 voyages and 121 years to catch.[59]

Blue whales dominated the whale catch in the 1930s, but by 1965 their stock numbers were so low that the IWC began to regulate the catches. Fin whales, which were once the most abundant whale in the Southern Ocean, underwent a rapid decline and collapse in the 1960s. In 1958, whalers started to hunt sei whales, which were not desirable because of their small size, and by 1964 the IWC put restrictions on the number of sei whales that the commercial whaling fleet could kill. The whalers started to hunt the minke whale last. Whalemen did not start to hunt minke whale in large numbers until 1971 when the IWC had strictly regulated all other whale populations.[60]

The Call for Preservation

Between the 1950s and 1970s, whaling became less popular with the general public in North America and Europe for a number of reasons. First, people were producing petroleum and other synthetics that replaced whale oil in products. The first substitute for whale oil was coal gas, which people could use as fuel for lamps. Then, in 1859, Edwin Drake invented a method to drill for petroleum in Pennsylvania. Petroleum was a cheaper and more accessible replacement for whale oil. [61] Scientists discovered that the oil from the jojoba

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[59] Ellis, The Empty Ocean, 248-249.
[60] Allen, 13.
[61] Albion, Baker, and Labaree, 118.

plant had the same characteristics as spermaceti oil, and manufacturers could use jojoba as a substitute in cosmetics and lubricants.[62] Also, the style of clothing that baleen had been needed to produce had fallen out of fashion.

The growing environmental awareness of residents in industrialized countries led to a realization by the general public that whaling created a major environmental problem: rapidly declining whale populations. Marine biologists were also beginning to better understand whales. They discovered that whales have brains six times bigger than the human brain.[63] Scientists also realized that whales have very complex methods of hunting and communication and that whales have a very fragile life cycle with a low birth rate and a low death rate.[64] Natural mortality rates for fin whales are only four percent per year, and sperm whales have a natural mortality rate of six percent per year.[65] Scientists realized that population dynamics were the reasons that stocks were not replacing themselves as they were hunted to collapse.

Additionally, people in the United States and many other countries were beginning to develop a sense of "larger ecological awareness" and "biocentrism."[66] The biocentric mindset caused people to think about how their

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[62] Day, 141.
[63] Schiffman, 320-322.
[64] Ibid.
[65] Allen, 9.
[66] Schiffman, 7.

actions would affect not only other humans but also of how they would impact all living creatures. Individuals' greater awareness of the uniqueness of whales led to the formation of grassroots environmental groups that started waging a war on whaling.

Another driving force behind the changing attitude toward conservation was the American media. Between 1964 and 1968, Flipper was a popular nationally televised show in the United States. The star of the show was a dolphin with which many Americans fell in love with. The media introduced Americans to more whales as the environmental movement gained momentum. The environmental movement used whales as poster "charismatic megafauna" because people like and can sympathize with these large animals.[67] In 1972, the environmental movement had a victory in the battle against whaling when the United States passed the Marine Mammal Protection Act and outlawed all whaling done by United States companies, three and a half centuries after whaling first began in American waters.

Three years later, on June 27, 1975, a small rag-tag environmental group called Greenpeace staged the first open ocean action against whaling. While peaceful protestors in their zodiacs tried to protect a whale from whalers, the Russian whalers launched a harpoon over their heads and into the whale.[68] Television channels around the world aired the footage of this event, which

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[67] Brian Garrod and Julie C. Wilson, eds., Marine Ecotourism: Issues and Experiences (Clevdon: Channel Viwe Publications, 2003), 3.

garnered additional support for the anti-whaling movement.[69] By 1977 the "Save the Whales" movement had successfully helped reduce the world's pelagic whaling fleet to two, one ship operated by Japan and the other by Russia.[70] The next highlight in the war on whaling came when Australia, a former whaling country, declared that whaling was morally wrong.[71]

Then in 1978, came a discovery that disheartened the anti-whaling movement. The discovery was of the "pirate whalers" that operated in the Atlantic Ocean. In 1975, Nick Carter, environmental activist and author, discovered one pirate whaler, but environmental activists did not know about the existence of the whole fleet until 1978.[72] The "pirate whaling" fleet was combination killer-factory ships with complicated histories that made it almost impossible to trace the ownership or actions of these vessels. These vessels operated outside of the law, with an utter disregard for the preservation of whales. They would kill as many whales as they could, regardless of species, size, or age. For two long years the anti-whaling movement worked to destroy the "pirate whaling" industry, and by 1980 the whales in the Atlantic were safe from pirates.[73] The ultimate victory for the "Save the Whales" movement came in 1982 when the IWC passed an indefinite moratorium on commercial whaling.[74]

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[68] Day, 12.
[69] Ibid.
[70] Ibid., 15.
[71] Ibid., 19.
[72] Ibid., 39.
[73] Ibid., 23.
[74] Ellis, Men and Whales, 442.

THE INVENTION AND GROWTH OF THE WHALEWATCHING INDUSTRY

The United States whalewatching industry began in 1950 when Cabrillo National Monument in San Diego, California, was designated as a spot for public viewing of Pacific gray whales. The first recorded commercial whalewatching trip took place at Cabrillo National Monument in 1955.[75] On this trip, which cost just one dollar per passenger, people enjoyed a closer look at the migrating Pacific gray whales. In 1955, almost 10,000 people went commercial whalewatching off the coast of San Diego.[76] The popularity of commercial whalewatching in California led to the expansion of the industry. In 1975, Al Avellar, owner of a commercial sport-fishing vessel in Provincetown, Massachusetts, started taking people whalewatching on Stellwagen Bank. Whalewatching in Stellwagen Bank proved to be very popular, and the industry there has been steadily expanding since 1975.

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[75] Brad Barr, "Forward," The Economic Contributions of Whale Watching to Regional Economies: Perspectives From Two National Marine Sanctuaries (Silver Springs, MD: United States Department of Commerce, National Oceanic and Atmospheric Administration, Marine Sanctuaries Division, 2000),3.

[76] Wikipedia, "Whale Watching"[online resource], accessed 30 November 2004, available from http://en.wikipedia.org/wiki/whale-watching.

At the same time whalewatching was growing in the United States, the concept of "ecotourism" developed. In 2002, ecotourism was defined by David Weaver, author of Ecotourism, as

> a form of tourism that fosters learning experiences and appreciation of the natural environment, or some component thereof, within its associated cultural context. It has the appearance (in concert with best practices) of being environmentally and socio-culturally sustainable, preferably in a way that enhances the natural and cultural resource base of the destination and promotes the viability of the operation.[77]

Well run ecotourism attractions educate current tourists while protecting the environmental resource for the future.[78] Since ecotourism is relatively new, there are few rules and regulations guiding the development of the industry.[79] Therefore, there are many opportunities to create sound policies that will ensure the preservation of natural resources through ecotourism.[80]

Whalewatching, if well managed, has the potential to be a viable form of ecotourism. One key element of ecotourism that many commercial whalewatching trips already include is an educational message. Because many of the commercial trips include educational elements whalewatching is an ideal way to educate the public about the dangers whales face.[81] Whalewatching provides the ultimate bridge from "caring about the environment to caring for the

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[77] David Weaver, Ecotourism, (Milton, Australia: John Wiley and Sons, 2002), 15.
[78] David A. Fennell and Ross K. Dowling, eds., Ecotourism Policy and Planning, (Cambridge, Massachusetts: CABI Publishing, 2003), 15.
[79] Ibid., xiii.
[80] Ibid., 5.
[81] Constance L. Russell and Derek Hodson, "Whalewatching as Critical Science Education?," Canadian Journal of Science, Mathematics and Technology Education (2002): 490.

environment."[82] Whalewatching provides an opportunity for people to become more involved in learning about their environment because it takes them out of classrooms and books and into the world where they get to see firsthand how whales live in their natural environment. In theory, whalewatching is an amazing method to teach people about the marine environment and cetaceans, but an opportunity is missed if a commercial whalewatching operator does not provide information to the whalewatcher.[83] Ideally a commercial whalewatch trip should include an educational narration or a pamphlet that leaves passengers more informed about the issues concerning whales and the global marine environment.[84]

Two locations in which commercial and recreational whalewatching is very popular are Stellwagen Bank and Hawaiian Islands. Stellwagen and Hawaiian Islands are just two of the thirteen United States' National Marine Sanctuaries created under the National Marine Sanctuaries Act of 1972.[85] Congress or the National Oceanic and Atmospheric Administration (NOAA) designate sanctuaries based on an area's ecological, esthetic, or historical importance. A principal function of both Stellwagen and Hawaiian Islands is to provide protection to the whales that migrate through their waters. Stellwagen is along the

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[82] Ibid., 487.
[83] Ibid., 492.
[84] Ibid., 495. and Garrod, 2.
[85] National Marine Sanctuaries Act16 U.S.C. section 1431-1434.

migration route of many different species of cetaceans, including humpback, right, and fin whales (See Table 1). Whales use the waters in and around Stellwagen Bank for feeding and nursing. Many humpback whales go to the Hawaiian Islands to mate. Both sanctuaries aim to provide greater protection to whales than the Marine Mammal Protection Act and the Endangered Species Act, while at the same time striving to provide multiple uses in the sanctuary waters. Because of the elevated level of protection provided to whales in these two National Marine Sanctuaries whalewatching should be regulated by the principles of ecotourism.

North Atlantic Right Whale	*Eubalaena glacialis*
Finback Whale	*Balaenoptera physalus*
Sei Whale	*Balaenoptera borealis*
Blue Whale	*Balaenoptera musculus*
Humpback Whale	*Megaptera novaeangliae*
Minke Whale	*Balaenoptera acutorostrata*
Sperm Whale	*Physeter macrocephalus*
Killer Whale	*Orcinus orca*
Pilot Whale	*Globicephala melaena*
Beluga Whale	*Delphinapterus leucas*
Atlantic White-sided Dolphin	*Lagenorhynchus acutus*
Harbor Porpoise	*Phocoena phocoena*
White-beaked Dolphin	*Lagenorhynchus albirostris*
Bottlenose Dolphin	*Tursiops truncates*
Risso's Dolphin	*Grampus griseus*
Common Dolphin	*Delphinus delphis*
Striped Dolphin	*Stenella coeruleoalba*

Table 1- List of Cetaceans Sighted in Stellwagen Bank

Marine sanctuaries in the United States currently face five common problems: inadequate funding, understaffing, bureaucratic interference, excessive

arguments over what incompatible uses should be prohibited, and difficulty patrolling the waters of the sanctuary.[86] These five problems all contribute to National Marine Sanctuaries not providing adequate protection to whales. Because of the understaffing and financial difficulties, commonly there is not enough education to ensure that whales remain safe from recreational and commercial whalewatchers. Due to the lack of funding, it is hard for the sanctuaries to provide adequate enforcement on the water of its whalewatching regulations. Another difficulty that National Marine Sanctuaries face in creating a safe environment for whales is the number of parties with vested, yet diverse, interests in the sanctuary area.[87]

The whalewatching that began in the 1950s is now "an almost universal human passion" with commercial whalewatching in eighty-seven countries and overseas territories.[88] Whalewatching is one of the few activities that is truly global, with whalewatching trips run on all seven continents. In many locations, commercial whalewatching has replaced whaling, while in other nations where whaling is still practiced, whalewatching is popular.[89] Hoyt, a senior research associate with the International Fund for Animal Welfare, compiled the most

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[86] Gary A. Klee, The Coastal Environment Towards Integrated Coastal Marine Sanctuary Management (Upper Saddle River, New Jersey: Prentice Hall, 1999), 80.
[87] Ibid., 81.
[88] Erich Hoyt, Senior Research Associate with the International Fund for Animal Welfare, Whale Watching 2001 Worldwide Tourism Numbers, Expenditures, and Expanding Socioeconomic Benefits, A Special Report from the International Fund for Animal Welfare [online resource], (2001): 23, accessed 27 September 2004, available from http://www.ifaw.org/ifaw/dfiles/file_106.pdf.
[89] Ibid., 1.

recent survey of global whalewatching in 2001. The findings show that thirty-four IWC member nations have whalewatching industries, and in 2001, eight-six percent of the world's total whalewatching took place in these thirty-four countries. Between 1991 and 1998 the number of individuals participating in whalewatching rose from four million to nine million. This increase can be linked to a growing interest in whales as well as the expansion of whalewatching locations. The most through and most recent estimates of worldwide whalewatching industry profits were $299.5 million in 1998. The whalewatching industry has grown since that time and is expected to continue to grow. With the expansion of the industry, more people will have the opportunity to see the beauty of whales in their natural habitat and learn about marine ecosystems, whale habitats, and scientific research.[90] The growth of the whalewatching industry also means more vessel traffic and an increased risk of harassment to whales.

The first twelve centuries of the human-whale relationship were dominated by human abuse of whales. The actions taken by environmentalists, the IWC, and individual governments over the last thirty-five years shows a growing commitment to the well-being of cetaceans. In the future, interest in whalewatching will hopefully continue to grow. A steady interest in whalewatching and improved regulation of the industry will together guarantee that the public remains educated about whales and interested in preserving them.

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[90] Promoting Responsible Whalewatching [online resource] accessed 3 February 2005, available from www.ifaw.org/general/default.aspx?oid=32698.

Since individuals who choose to go whalewatching are for the most part interested in protecting whales, it is important that the rules and regulations protect whales from being "loved to death" by whalewatchers.[91]

[91] Nathalie Ward, Stellwagen Bank A Guide to the Whales, Sea Birds, and Marine Life of the Stellwagen Bank National Marine Sanctuary (Camden, Maine: Down East Books, 1995), 2001.

RULES, REGULATIONS, AND LAWS: THE POLICIES BEHIND WHALEWATCHING

The International Whaling Commission

In 1946, the International Whaling Conference drafted the International Convention for the Regulation of Whaling (Convention), which went into effect on November 8, 1948. The Convention states that the two goals of the IWC are to (1) conserve the whale stocks and (2) to insure the manageable development of the whaling industry.[92] The IWC is charged with meeting these goals by collecting and analyzing data on whale stocks and making recommendations on what whale stocks need more protection.[93] As guidelines for the IWC, the Conference created articles detailing the purpose of the IWC and regulations for ruling itself. The conference also created a "schedule" of regulations, which lists the whales protected by the Conference and what the IWC is supposed to do to regulate the whale stocks. The writers of the Convention created many rules for the IWC that , in reality, left the IWC with very little governing power (See Appendix B- International Convention for the Regulation of Whaling).

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[92] Robert L. Friedheim, ed., Towards A Sustainable Whlaing Regime (Seattle: University of Washington Press, 2001), 4.
[93] Hunter, 979.

Fifteen countries, with varying degrees of interest in whaling, participated in the development of the conference.[94] The Conference did not give the IWC autonomus enforcement authority, rather, the Conference delegated enforcement to the individual member states. Each nation must make sure that it controls whaling vessels flying its flag and report all violations that occur to the IWC. Second, Article V of the Convention gives the IWC the right to amend "the Schedule by adopting regulations with respect to the conservation and utilization of whale resources."[95] The IWC is allowed to make changes to the "schedule" that alter the protected species list, whaling season, sanctuary areas, and types of gear that is allowed to be used. A third interesting technicality of the Convention is that Article VII provides the right to "scientific permits" for whaling, which allow individual governments to issue permits to vessels carrying their flag to kill whales regardless of a species' status on the IWC's protected species list.[96] The last notable provision in the Convention is found in Article XI, and it is the ability of objecting countries to withdraw from the Convention as long as the notice is timely.[97]

The IWC was ineffective for many years, until 1972, when the IWC started to conserve whales. The move towards conservation started when the

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[94] The fifteen countries who participated in the Conference are Australia, Canada, Denmark, France, Iceland, Mexico, the Netherlands, New Zealand, Norway, Panama, South Africa, Sweden, Great Britain, the United States, and the Soviet Union.
[95] International Convention for the Regulation of Whaling, Article V, 2 December 1946, 62 Stat. 1716 U.N.T.S. 72 (entered into force 10 November 1948) [hereinafter "Convention"].
[96] Ibid., Article VII.
[97] Ibid., Article XI.

IWC finally stopped using the Blue Whale Unit system.[98] The IWC's decision to stop using the BWU was made after the IWC suspended the hunting of blue whales in 1965 because the BWU system had caused whalers to focus on killing blue whales. The IWC abandoned the BWU system and moved to setting quotas for individual species and individual nations. Also, in 1972, at the United Nations Conference in Stockholm, Sweden, the UN passed a ten-year moratorium on whaling with unanimous consent. When the fourteen members of the IWC met in 1972 they voted on the United Nations' proposal, and the proposal was rejected by a vote of four yeas (America, Britain, Argentina, and Mexico), six nays (Japan, Russia, Norway, Iceland, South Africa, and Panama), and four abstentions (Australia, Canada, Denmark, and France).

By 1973 the balance of power in the IWC had undergone a dramatic shift, and when the IWC once again voted on the moratorium there were eight yes votes (America, Britain, Argentina, Mexico, Panama, Australia, Canada, and France), five no votes (Japan, Russia, Norway, Iceland, and South Africa), and one abstention (Denmark). The moratorium did not pass because a three-quarters majority was needed for passing an amendment, but it was clear to the whaling countries that more countries were supporting the non-whaling movement. In 1974, Brazil joined the IWC as a whaling nation, followed by New Zealand as an anti-whaling nation in 1976. Then, in 1977, the Netherlands joined the IWC as an

[98] Mulvaney, 116.

anti-whaling nation. By 1979 there were twenty-three nations in the IWC; the six new countries were Chile, Peru, Spain, Korea, Seychelles, and Sweden. All of the new countries were whaling nations, except Seychelles and Sweden. Even with the four new whaling nations in the IWC, the IWC passed a ban on pelagic whaling of all species except minke, as well as a ban on all whaling in the Indian Ocean.

In 1979, Japan got nervous about the possibility of the IWC being able to pass a moratorium on whaling, leading it to initiate behind the scenes negotiations to ensure the future of commercial whaling. Some of these dealings involved Japan offering many of the smaller countries in the IWC economic development packages that were hard to turn down. Japan's dealings led Panama to withdraw from the IWC in 1980. Also, in 1980 Oman and Switzerland joined the IWC. The following year, 1981, Jamaica, Saint Lucia, Dominica, Costa Rica, Uruguay, China, India, Saint Vincent, and the Philippians joined, and Canada withdrew from the IWC. Canada left the IWC for reasons that have never been fully revealed, although, the country claimed to no longer be involved in whaling.[99] In 1982, Egypt, Monaco, Germany, Kenya, Senegal, Belize, and Antigua joined the IWC. With the change in nation participation the IWC now had more whaling nations than non-whaling nations in place.

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[99] Ellis, Men and Whales, 429.

With more non-whaling nations in place, in 1982, the IWC created an indefinite moratorium on worldwide commercial whaling that took effect in the 1985-1986 season. In 1983, Finland and Mauritius joined the IWC, followed by Ireland and the Solomon Islands in 1985. The ban on whaling went into effect in 1985. For the first time, the IWC set all whaling quotas at zero, but Japan, Russia, and Norway (the strongest of the whaling nations in the IWC) filed timely objections and continued to whale. Iceland and Korea continued to hunt whales using the "scientific research" loophole in the IWC guidelines. However, much of the whale meat that was obtained through scientific research mysteriously shows up in fish markets.

In 1992, Iceland withdrew from the IWC so it could resume commercial whaling, but rejoined in 2002. Japan now hunts whales under for "scientific research", and has threatened to withdraw from the IWC in 2006 if the moratorium is not lifted.[100] Norway is once again involved in commercial whaling, and Iceland now whales for scientific purposes. The number of member nations in the IWC remains important to the future of international whaling. Only nations that are members of the IWC need to abide by the regulations that the IWC creates. So, any nation that is not a member of the IWC can kill as many whales as it would like to. A member nation of the IWC can also hunt whales as long as it filed an objection to the moratorium in a timely manner. These

[100] Andrew Revkin, "Save the Whales! Then What?," New York Times, 17 August 2004, F1.

loopholes in the regulations give the IWC no enforcement power over countries that want to continue to whale.

Since 1993, the IWC has been interested in whalewatching. First, the IWC researched whalewatching by asking member nations to collect information about whalewatching in their countries. This information was turned in at the 1994 IWC meeting. At the 1994 meeting a working group was established to review the information on whalewatching that was collected. After the 1994 meeting IWC's Scientific Committee analyzed whalewatching guidelines from all over the world, and agreed upon general principles for whalewatching, which the IWC supports as beneficial guidelines for the protection of whales. These guidelines do not need to be followed by any nation; however, they are made available to any interested party (See Appendix C- International Whaling Commission's General Principles for Whalewatching). [101]

The IWC's interest in whalewatching and its general principles could become more important in the coming years. In 2003, a big change occurred in the IWC when by a vote of twenty-five to twenty, with one abstention, members passed a resolution to form a Conservation Committee. The new committee is responsible for creating and recommending a conservation agenda to the IWC.[102] The creation of the Conservation Committee signals another major shift in the

[101] Whalewatching, [online resource] accessed 9 February 2005, available from www.iwcoffice.org/conservation/whalewatching.htm.
[102] 2003 Meeting, [online resource] accessed 9 February 2005, available from www.iwcoffice.org/meetings/meeting2003.htm.

mentality of the IWC members. This shift shows that some members are serious about the long-term health of the world's whale stocks.

Name of Country	Adherence Date	Name of Country	Adherence Date
Antigua & Barbuda	21/07/82	Mauritania	23/12/03
Argentina	18/05/60	Mexico	30/06/49
Australia	10/11/48	Monaco	15/03/82
Austria	20/05/94	Mongolia	16/05/02
Belgium	15/07/04	Morocco	12/02/01
Belize	17/06/03	Netherlands	14/06/77
Benin	26/04/02	New Zealand	15/06/76
Brazil	04/01/74	Nicaragua	05/06/03
Chile	06/07/79	Norway	23/09/60
China	24/09/80	Oman	15/07/80
Costa Rica	24/07/81	Republic of Palau	08/05/02
Côte d'Ivoire	08/07/04	Panama	12/06/01
Czech Republic	26/01/05	Peru	18/06/79
Denmark	23/05/50	Portugal	14/05/02
Dominica	18/06/92	Russian Federation	10/11/48
Finland	23/02/83	San Marino	16/04/02
France	03/12/48	St Kitts and Nevis	24/06/92
Gabon	08/05/02	St Lucia	29/06/81
Germany	02/07/82	St Vincent & The Grenadines	22/07/81
Grenada	07/04/93	Senegal	15/07/82
Guinea	21/06/00	Slovak Republic	22/03/05
Hungary	01/05/04	Solomon Island	10/05/93
Iceland	10/10/02	South Africa	10/11/48
India	09/03/81	Spain	06/07/79
Ireland	02/01/85	Suriname	15/07/04
Italy	06/02/98	Sweden	15/06/79
Japan	21/04/51	Switzerland	29/05/80
Kenya	02/12/81	Tuvalu	30/06/04
Kiribati	28/12/04	United Kingdom	10/11/48
Republic of Korea	29/12/78	USA	10/11/48
Mali	17/08/04		

Table 2- List of Current IWC Member Nations and Adherence Dates[103]

[103] International Whaling Commission, "IWC Member and Commissioners" [online resource], accessed on 19 April 2005, available from http://www.iwcoffices.org/commisson/members.htm.

United States Laws

Marine Mammal Protection Act[104]

The Marine Mammal Protection Act of 1972 provides protection for all marine mammals, not just those on the endangered and threatened species list. It prohibits the taking, importation, transportation, possession, and purchase or sale of marine mammals except as afforded in the Act. This Act was created because many marine mammal stocks were in danger of extinction or depletion due to human activities. The members of Congress who wrote and voted for the MMPA believed that marine mammal stocks should not be "permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part," and that "marine mammals have proven themselves to be resources of great international significance, esthetic, recreational, as well as economic."[105] The Act also includes statements about the need to protect the habitats of marine mammals from the detrimental effects of human activity.

In the MMPA *take* "means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal."[106] *Harass*, for all people in United States' waters, except the military in the case of a military readiness activity or government scientists that are engaged in activities defined in section

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[104] Marine Mammal Protection Act of 1972, 16 U.S.C. Sections 1361-1421 (h) (1994 &Supp. V 1999).
[105] 16 U.S.C. Section 1361
[106] 16 U.S.C. Section 1362

104 (c)(3), is defined as "any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."[107] The types of harassment are divided into two categories: "Level A harassment" is any activity that has the potential to disturb a marine mammal in the wild; "Level B harassment" includes any activity, which alters a marine mammal's natural behavior.[108]

When the MMPA was implemented in the United States Code of Federal Regulations (50 CFR Part 216) the definition for the term *take* was altered to be more specific. The revised definition of *take* is

> to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal. This includes, without limitation, any of the following: The collection of dead animals, or parts thereof; the restraint or detention of a marine mammal; the negligent or intentional operation of an aircraft or vessel, or doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal; and feeding or attempting to feed a marine mammal in the wild.[109]

A violation of the MMPA could be subject to a civil penalty of up to $10,000 per violation, or criminal prosecution that could result in a fine of up to $100,000, or a

[107] 16 U.S.C. Section 1362 (18) (A) (i) (ii)
[108] 16 U.S.C. Section 1362 (18) (B) (C)
[109] 50 CFR Section 216.3

prison sentence of up to one year, or both. The National Marine Fisheries Service (NMFS) is the enforcement agency for the MMPA, and the Department of Commerce is allowed to use their personnel for additional enforcement.[110] Some of the activities that are exempt from the *takings* regulation of the MMPA with a permit or authorization from the National Oceanic and Atmospheric Administration (NOAA) or the NMFS are scientific research, photography, and incidental takes during commercial fisheries and non-fishery activities.

Endangered Species Act[111]

The Endangered Species Act (ESA) of 1973 provides for the protection of endangered and threatened species and their ecosystems because "these species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."[112] The regulatory power of the ESA is the direct responsibility of the Department of the Interior and the Department of Commerce, but it is expected that all departments and agencies conserve endangered and threatened species. The Act prohibits the importation, exportation, possession, or *taking* of any endangered or threatened species.[113] There are exceptions and exemptions to all of the rules created through permitting.[114] The act defines *take* as "to harass, harm, pursue, hunt, shoot,

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[110] 50 CFR Section 216.8
[111] Endangered Species Act of 1973, 16 U.S.C. Section 1531-1544 (1994 & Supp 1999).
[112] 16 U.S.C. Section 1531 (a)(3)
[113] 16 U.S.C. Section 1538 (1) (A) (B) (C) (D) (E) (F) (G)
[114] 16 U.S.C. Section 1532 (g)(2) and 1539

wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[115]

The language by which the term *take* was defined changed in United States Code of Federal Regulations (50 CFR), which implemented the Endangered Species Act. In 50 CFR, *take* is reworded to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect."[116] The term *harm*, which appears in the definition of take, is also defined in 50 CFR as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modifications or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering."[117]

While both *take* and *harm* are defined, the descriptions are not specific, allowing for a broad interpretation of the law. Therefore, with respect to whalewatching, a commercial or recreational vessel could *take* a whale by harassing, harming, wounding or killing it. A whalewatching vessel has the potential to *harass* a whale by getting too close to it or getting in its path, causing the whale to need to change its course. Whalewatching vessels can *harm* whales by creating an area where vessel traffic is so dense that whales avoid the area.

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[115] 16 U.S.C. Section 1532 (19)
[116] Endangered Species Act of 1973, United States Code of Federal Regulation, 50 CFR Section 222.102 (1973).
[117] 50 CFR Section 222.102

The number one cause of a whalewatching vessel wounding or killing whales is by accidentally striking them. When a whalewatching vessel strikes a whale it can cause internal injuries by shear force of the two bodies colliding. A whalewatching vessel can also cause external injuries if the whale comes into contact with the boat's propeller. Sometimes the injury to a whale caused by a vessel strike is so severe the whale dies.

If a person knowingly *takes* an endangered species s/he is subject to a civil penalty of up to $10,000, and if a person accidentally *takes* an endangered specie then s/he is subject to a civil penalty of up to $500. Criminal acts are liable to be subject to fines of up to $20,000, a year in prison, or both.

Title III of the Marine Protection, Research, and Sanctuaries Act[118]

Title III of the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972, also known as the National Marine Sanctuaries Act (NMSA), established the National Marine Sanctuaries System in the United States. This Act was created to protect and manage marine areas based on their "conservation, recreational, ecological, historical, cultural, archaeological, scientific, educational, or esthetic qualities." Title III aims to "improve the conservation, understanding, management, and wise and sustainable use of marine resources; enhance public awareness, understanding, and appreciation of the marine environment; and

[118] National Marine Sanctuaries Act16 U.S.C., Chapter 32, Section 1431-1434 (1972).

maintain for future generations the habitat, and ecological services, of the natural assemblage of living resources that inhabit there areas."[119]

It is the responsibility of the United States' government to identify and manage these areas as the National Marine Sanctuary System. There are two methods by which an area can become a National Marine Sanctuary. The first is administratively through the National Marine Sanctuaries system, and the second way is legislatively through Congress. Once an area is named a National Marine Sanctuary it is supposed to "enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System."[120]

National Marine Sanctuaries are also supposed to organize scientific research and monitoring of the marine resources in the designated areas, and facilitate public and private uses of the marine sanctuaries. The management and protection of the sanctuary areas should be organized to meet the interest and needs of the users. The sanctuaries are responsible for creating the methods that are used to conserve and manage the area. National Marine Sanctuaries are expected to collaborate with the international programs that support the conservation of marine resources.[121] One international program that Hawaiian

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[119] 16 U.S.C. Section 1431
[120] 16 U.S.C. Section 1431
[121] 16 U.S.C. Sections 1431-1434, 301 (b) (1) (2) (3) (4) (5) (6) (7) (8) (9)

Islands is currently involved with is a monitoring project of the number of humpback whales in the Pacific Ocean.

Stellwagen and Hawaiian Islands were both designated, at least in part, because of the areas' importance to whales. It is the job of these to sanctuaries to provide adequate protection to whales, and to make sure that whalewatching vessels are not interfering with their whale populations.

The Hawaiian Islands Humpback Whale National Marine Sanctuary Act[122]

The Hawaiian Islands Humpback Whale National Marine Sanctuary Act provides the management plan that is specific to the Hawaiian Islands. The Sanctuary was created to protect the humpback whale and their habitat for several reasons. First, the world's largest stock of Northern Pacific humpback whales breed and calve in the waters around the Hawaiian Islands.[123] It was discovered that these areas, which are important to the humpbacks, were harmed by human disturbances, and that the regulation and management provided by state and federal agencies prior to the area's designation as a National Marine Sanctuary was inadequate.[124] Hawaiian Islands was also created to provide public education and support scientific research, which Congress believes will lead to the conservation and survival of humpback whales.[125] Therefore, a main purpose of

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[122] Subtitle C of Public Law Section 102-587, as amended by Public Law 104-283
[123] Oceans Act of 1992, H.R. Section 5617, subtitle C Hawaiian Islands Humpback Whale National Marine Sanctuary, Sections 2301-2307.
[124] Section 2302 (7) (8)
[125] Section 2302 (13) (14)

the sanctuary is to educate the public about the relationship between the humpback whale and the Hawaiian marine environment.[126]

The Stellwagen Bank National Marine Sanctuary Act[127]

Congress designated Stellwagen Bank a National Marine Sanctuary for a number of reasons, including that it's a feeding and nursing ground for five endangered whales: the humpback, fin, blue, sei, and Northern Atlantic right whales.[128] The number one goal of Stellwagen Bank National Marine Sanctuary (Stellwagen) is to "protect the marine environment, resources, and qualities of the sanctuary." In order to protect the whales in the sanctuary, no *takings* are allowed.[129] Sanctuary visitors are not allowed to feed or injure the marine mammals within the sanctuary limits.[130] Education is a main priority in the sanctuary's management plan. Stellwagen aims to provide information on sanctuary regulations to the public, promote compatible uses of the Sanctuary though education, encourage the public to use the Sanctuary, and minimize potential user conflicts.[131]

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[126] Section 2304 (2)
[127] 58 F.R. Section 53865, 15 C.F.R. Part 940
[128] 15 C.F.R. Part 940 Article III
[129] 15 C.F.R. Part 940 III
[130] 15 C.F.R. Part 940 Article IV Section 1 (f)
[131] 15 C.F.R. Part 940 III

Whalewatching Guidelines for Hawaiian Islands Humpback Whale National Marine Sanctuary[132]

The ESA contains special prohibitions for endangered marine animals. The four prohibitions included in the ESA are intended to regulate approaching humpback whales in Hawai‘i. The ESA makes it illegal to approach within one hundred yards (ninety meters) of a humpback whale; to

> cause a vessel or other object to approach within 100 yards of a humpback whale; or disrupt the normal behavior or prior activity of a whale by any other act or omission. A disruption of normal behavior may be manifested by, among other actions on the part of the whale, a rapid change in direction or speed; escape tactics such as prolonged diving underwater course changes, underwater exhalation or evasive swimming patterns; interruptions of breeding, nursing, or resting activities; attempts by a whale to shield a calf from a vessel or human observer by tail swishing or by other protective movement; or the abandonment of a previously frequented area.[133]

These regulations are all federally enforceable. The only exceptions to these regulations are by a permit authorized by NOAA Fisheries.

In addition to the ESA regulations, the sanctuary created voluntary guidelines to help vessel operators make better decisions around whales. The guidelines created by Hawaiian Islands Humpback Whale National Marine Sanctuary are not enforceable. They are just suggestions of actions that boaters

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[132] Hawai‘i’s Marine Protected Species A Handbook for Ocean Users About Hawai‘i’s Whales, Dolphins, Sea Turtles, and Monk Seals and the Laws that Protect Them The Laws and Regulations for Federally Protected Marine Resources, (NOAA and the State of Hawai‘i, 2004-2005), 31-32.
[133] 50 CFR 224.103 (a) (1) (2) (3) (4)

should comply with in order to provide greater protection for whales and to prevent *harassment* (See Appendix D- Whalewatching Guidelines for Hawaiian Islands Humpback Whale National Marine Sanctuary).

Whalewatching Guidelines for Stellwagen Bank National Marine Sanctuary[134]

The guidelines for whalewatching on Stellwagen Bank are much more specific than the guidelines for Hawaiian Islands; however, they are all voluntary guidelines, except for the regulations on North Atlantic right whale viewing. Since the right whale population recovery is occurring at such a slow pace, there are state and federal enforceable regulations providing North Atlantic right whales more legal protection. It is illegal for any vessel that is not engaged in commercial fishing or approved by NMFS to examine a whale for entanglement to approach within 500 yards of a right whales (450 meters). If a vessel is within 500 yards of a right whale they are to slowly and cautiously leave the buffer zone.

Sanctuary mangers revised the guidelines in 1998-1999 to better protect whales against vessel strikes. Therefore, managers created guidelines to keep whales in the vicinity of whalewatching vessels safe. The writers of the guidelines also intended to keep whalewatchers from *harassing* whales as defined in the MMPA (See Appendix E- NOAA- National Marine Fisheries Service and

[134] "NOAA-National Marine Fisheries Service and National Ocean Service Whalewatching Guidelines for the Northeast Region Including Stellwagen Bank National Marine Sanctuary" [online resource], accessed on 27 September 2004, available from www.nmfs.noaa.gov/pr/readingrm/MMView/nr051999.pdf.

National Ocean Service Whalewatching Guidelines for the Northeast Region Including Stellwagen Bank National Marine Sanctuary).

This chapter offered a broad overview of the policies that relate to whalewatching. The reader should bear in mind that some of the policies are enforceable while others are merely suggested. Also, this overview should provide the reader with a sense of the enforcement options that officials can use to regulate whalewatching. The next two chapters present the information on how the individuals interviewed about Stellwagen and Hawaiian Islands think the sanctuaries are doing in their quests to better protect whales.

STELLWAGEN BANK NATIONAL MARINE SANCTUARY

In 1854, Captain Henry Stellwagen recorded in his papers that he had made an "important discovery in the location of a fifteen fathom bank lying in a line between Cape Cod and Cape Ann."[135] Captain Stellwagen discovered a 638-square-nautical-mile area of the sea teaming with sea life and marine resources. In 1982, a group at the Center for Marine Studies on Cape Cod wrote a proposal to NOAA to nominate this area, which is now known as Stellwagen Bank, for consideration to be a National Marine Sanctuary. NOAA considered the proposal, and in 1983, added Stellwagen Bank to the list of proposed sites. NOAA nominated Stellwagen to Congress to be a National Marine Sanctuary in 1989. On November 4, 1992, President George H. W. Bush named Stellwagen Bank the eleventh National Marine Sanctuary in the United States.

Stellwagen Bank is located twenty-six miles east of Boston, Massachusetts, six miles north of Provincetown, and seven miles southeast of Gloucester, in an area that is, and has historically been, used for many purposes.[136] In the nineteenth century Provincetown had the second largest whaling fleet in the United States. From 1750-1850, Boston, Massachusetts, was the third busiest

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[135] Ward, 20.
[136] Ibid., 22.

harbor in the world. Gloucester historically had and continues to have one of the largest fishing fleets in the state.

Today, instead of whaling vessels leaving from Provincetown to hunt whales, whalewatching vessels take visitors to Stellwagen Bank to enjoy the beauty of the whales. Boston remains a busy port city, and the shipping channel that the vessel traffic going into and out of Boston must use runs through Stellwagen Bank. The sanctuary tries to manage the commercial, recreational, scientific, and educational actives that occur within sanctuary boarders because of all of the modern uses and modern vessel traffic in Stellwagen Bank.[137]

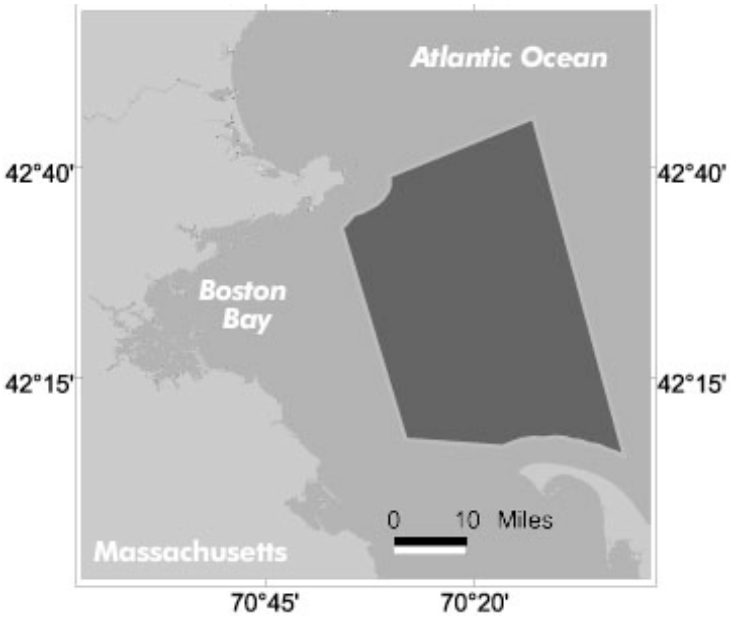

Figure 4- Chart of Stellwagen Bank[138]

[137] Ibid., 9.
[138] "Stellwagen Bank National Marine Sanctuary" [online resource], accessed 2 April 2005, available from http://www.sanctuaries.nos.noaa.gov/oms/omsstellwagen/omsstellwagen.html.

Whalewatching is one of the primary reasons that Congress considered Stellwagen for National Marine Sanctuary status.[139] Whalewatching in Stellwagen Bank began seven years before the area was recommended for consideration to NOAA. On April 15, 1975, Al Avellar began taking passengers out to Stellwagen Bank to view whales. For his early trips he used his fishing boat, Dolphin. He named his whalewatching company Dolphin Fleet. Avellar recognized the importance of educating his passengers about whales, so beginning with his very first whalewatching trip, Avellar brought a naturalist aboard his vessel.[140] Between 1975 and 1992, when Stellwagen became a National Marine Sanctuary, over ten million people gained a sense of the ecological significance of the Stellwagen Bank area by going on whalewatching trips. Dolphin Fleet is still in existence today, but they now operate three vessels for the sole purpose of whalewatching.

The rest of the whalewatching industry has also grown since 1975, and E Magazine has named Stellwagen Bank one of the top ten whalewatching locations in the world.[141] Today there are more than fifteen companies operating more than twenty vessels from nine ports in the Cape Cod, South Shore, Boston, and North Shore areas. Tickets for whalewatching trips have been steadily increasing in price. In 1994, the average price of a ticket was fifteen dollars, but by 1996 it had

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[139] Hoyt, 16.
[140] Ward, 197.
[141] Elain Roberts, "The Top 10 Whale-Watching Spots," E Magazine: The Environmental Magazine, May/June 1997, 28.

increased to twenty-four dollars. Even as the ticket price increases, so too does the interest in whalewatching.[142] Today, up to two million people per season go whalewatching on Stellwagen Bank.[143]

Lisa Fox, director of the Center for Oceanic Research and Education, has been working on whalewatching vessels since 1988. She has seen the number of passengers dramatically decrease on the vessel that she works on, but this is not because there are fewer people going whalewatching. It is because there are more whalewatching vessels in the sanctuary area. Over the last few seasons, Yankee Whalewatching, the company on whose vessels Lisa is a naturalist, has seen about the same numbers of passengers from season to season.[144]

The revenue brought into the New England economy through whalewatching is estimated to be at least twenty-one million dollars per year, making it one of New England's most important recreational activities.[145] Scientists who also serve as naturalists to educate passengers on commercial whalewatching vessels in Stellwagen Bank use the whalewatching vessels as research platforms. The scientific community benefits from this arrangement because they save at least $875,000 per year in research costs because they do not

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[142] Hoyt, 16.
[143] Ward, 194
[144] Lisa Fox, Director of the Center for Oceanic Research and Education, Provincetown, MA, personal correspondence by e-mail.
[145] Porter Hoagland and A.E. Meeks, "The Demands for Whalewatching at Stellwagen Bank National Marine Sanctuary," The Economic Contributions of Whale Watching to Regional Economies: Perspectives From Two National Marine Sanctuaries (Silver Springs, MD: United States Department of Commerce, National Oceanic and Atmospheric Administration, Marine Sanctuaries Division, 2000), 56.

need to incur the expenses associated with owning and operating research vessels.[146]

In addition to the commercial whalewatching vessels that use sanctuary waters, there is also an unknown number of recreational whalewatching vessels that use the area each day.[147] Due to the volume of commercial and recreational vessel traffic, one of the largest problems that managers of Stellwagen Bank face today is how to keep sanctuary users from harming the seventeen species of cetaceans that migrate through the sanctuary's boarders.[148] Five of the species seen in Stellwagen Bank are fin whales, North Atlantic right whales, sei whales, blue whales, and humpback whales; all five of these species are on the endangered species list and are protected by the Endangered Species Act.[149]

Whalewatching has both positive and negative impacts on the whale population in Stellwagen Bank. Whalewatching has led to better protection of habitat, since the cultural significance of whalewatching on the greater sanctuary area helped in the National Marine Sanctuary designation process.[150] Whalewatching has also allowed many thousands of people to become more educated about the whales and ecology of Stellwagen Bank. The increased

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[146] Hoyt, 16.
[147] Marine Mammal Vessel Strike Working Group, *Gerry E. Studd's* Stellwagen Bank National Marine Sanctuary Mammal Vessel Strike Action Plan, (Stellwagen Bank National Marine Sanctuary, 2004), 4 [herein after MMVS-Plan].
[148] Ward, 201.
[149] Carrie B. Bridgewater, "The next Step in North Atlantic Right Whale Protection: A Closer Look at Whalewatching Guidelines for the North East," 6 Ocean and Coastal Law Journal 347 (2001): 1 [journal online], accessed 27 September 2004, available from http://web.lexis-nexis.com.
[150] Hoagland.

education has made individuals who have gone whalewatching more aware of the environmental issues that impact cetaceans, and whalewatching has made whalewatchers more interested in ensuring the survival of whales. Many individuals who have gone commercial whalewatching donate funds to help research and conservation efforts to continue.[151]

The negative impacts of whalewatching are not as well known as the positive impacts. While much research is focused on whales in Stellwagen there have yet to be any conclusive results on what the negative impacts of whalewatching on whales are.[152] One potential drawback of whalewatching is that it could harm whales' ability to hear well. Whalewatching could also interrupt the natural behavior of whales. If whalewatching interrupts the natural behavior of whales several behavioral changes could occur. A whale's respiration, resting, traveling speed, distribution, and/or vocalization could all change due to interruptions from whalewatching vessels.[153]

Whalewatching could also cause whales to become habituated to vessels. Habituation is a dangerous response to behavioral disturbance caused by whalewatching because it puts whales at a greater risk of being struck by vessels, since they would hear the vessel approaching but would not react to the vessel. Abandonment of habitat by the whales would mean that Stellwagen Bank

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[151] Joanne Jorzobski, Whale Watch Education Director and Marine Education Coordinator, Center for Coastal Studies, Provincetown, MA, e-mail correspondence, 1 February 2005.
[152] Mason Weinrich, Executive Director and Chief Scientist, The Whale Center of New England, Gloucester, MA, phone interview, 23 February 2005.
[153] Carole Carlson, Senior Marine Scientist Advisor, International Fund for Animal Welfare, Yarmouth Port, MA, e-mail interview, 27 January 2005.

National Marine Sanctuary had failed at its purpose of safeguarding the feeding grounds.[154] The potential outcomes of disturbance to whales make minimizing disturbance an important issue for both the sanctuary and the whalewatching industry. Basically, from the scientific information that is currently known about the effects of whalewatching on whales it is easy to assume whalewatching does or does not have negative impacts on whales, but it is difficult to determine the actual impacts.[155]

The most obvious negative impact that a whalewatching vessel can have on a whale is killing or injuring the whale. Injury to or death of a whale is a common consequence of vessel strikes. When a vessel strike occurs it is clear that a whalewatching vessel (commercial or recreational) is not in compliance with the MMPA or the ESA, and it is debatable if a boat was in fact trying to follow the recommended whalewatching guidelines. Since 1976, seventeen vessels have stuck whales within the sanctuary boarders, and an additional twenty vessels have struck whales in the coastal waters around Stellwagen (See Appendix F- Greater Sanctuary Strike Report). These thirty-seven strikes only represent the incidents that were reported, an unknown number of vessel strikes have occurred that were never properly reported. Nine of the reported strikes that took place inside sanctuary boundaries involved whalewatching vessels, and vessels that were actively engaged in whalewatching caused seven of the nine

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[154] Ibid.
[155] Mark Wiley, Marine Education Specialist, New Hampshire Sea Grant, Durham, NH, phone interview, 23 February 2005.

vessel strikes. Also, one of the seven vessels engaged in whalewatching was a recreational whalewatcher; the other six vessels were commercial. Commercial whalewatching vessels caused two additional vessel strikes in waters surrounding the sanctuary. One of these vessels was engaged in whalewatching while the other was transiting.[156]

When looking at these numbers it is important to keep in mind that commercial whalewatching vessels are more likely to report vessel strikes than many other types of ships.[157] Commercial whalewatching vessels report all strikes that they are involved in because there is no way to hide the incident with the number of passengers on board. One person interviewed believes that if all vessel strikes were reported, whalewatching vessels would be responsible for a lower percentage of the total number of vessel strikes than they currently are.[158] Also, it is important to note the difference between a whalewatching vessel that is actually engaged in whalewatching, and a non-engaged vessel that is transiting to or from the whalewatching grounds.[159] Therefore, a non-engaged whalewatching vessel is very much like any other vessel in service that is transiting from one point to another. While vessels are transiting, they normally travel at a faster speed than when they are actively looking for whales.

Since 1976, one of the whales struck by a vessel engaged in whalewatching in Stellwagen died. Five of the whales that were hit in Stellwagen

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[156] Regina Asmutis-Silvia, Biologist, International Wildlife Coalition, East Falmouth, MA, personal communication via e-mail, 26 January 2005.
[157] Asmutis-Silvia, telephone communication.

sustained injuries, and it is unknown what, if any, damage the other two whales struck within the sanctuary sustained. The one whale struck by a non-engaged whalewatching vessel outside of sanctuary waters was killed. The vessel that was engaged in whalewatching when it struck the whale in the greater sanctuary area had an unknown impact upon the whale. Since eleven of the thirty-seven reported strikes involved whalewatching vessels, and unknown vessel types caused eighteen strikes, many individuals involved with Stellwagen are wondering how the matter can be best addressed.

Changes were made to the recommended whalewatching guidelines after the 1998 season because commercial whalewatching vessels caused three vessel strikes.[160] The first incident involved a vessel striking and injuring a humpback whale; the second incident happened when a vessel collided with a fin whale that received unknown injuries; and the third incident involved a whalewatching vessel hitting and killing a minke whale.[161] These three incidents caused the Stellwagen Bank officials to take a long hard look at what was going on with whalewatching vessels, and what can be done in the future to prevent any further accidents involving whalewatching vessels and whales.

One problem that the sanctuary's investigation revealed was with the speeds at which vessels were traveling. In 1997, the average speed of a whalewatch boat was 13.6 knots. By 1998, the average speed of a whalewatching

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[158] Ibid.
[159] Asmutis-Silvia, personal correspondence.
[160] Hoagland.

vessel 18.9 knots. The maximum speeds at which whalewatching vessels traveled at increased by 12 knots between the 1997 season and the 1998 season.[162] This information prompted new suggested guidelines regarding speeds, which were incorporated in to the National Marine Fisheries Service Whalewatching Guidelines for the Northeast Region Including the Stellwagen Bank Marine Sanctuary. The new guidelines are supposed to protect the unseen whale, the whale that is most likely to get struck or accidentally harassed.[163]

The revised whalewatching guidelines were meant to protect whales from both ship strikes and harassment, but since they are only voluntary guidelines to follow and not enforceable regulations, it is hard to judge how they are working. Wiley and Moller conducted a study in 2003 to examine the compliance rate of commercial whalewatching vessels. The information Wiley and Moller collected revealed that there is a very low compliance rate among commercial whalewatching vessels. This information was presented to representatives from the whalewatching industry. The representatives had very little objection to the findings of the Wiley and Moller study.[164]

Biologist Regina Asmutis-Silvia observes that the new regulations are "broken with some consistency."[165] Asmutis-Silvia recognizes that there are many possible explanations for the low compliance rates. She is quick to point

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[161] MMVS-Plan, 16.
[162] MMVS-Plan, 2-3.
[163] Asmutis-Silvia, telephone communication.
[164] Susan Farady, Ecosystems Protection Project Manager, Ocean Conservancy, phone interview, 23 March 2005.
[165] Asmutis-Silvia, telephone communication.

out that in the last few years there have been fewer whales in the sanctuary waters. So, when a commercial whalewatching vessel sights a whale, other vessels will also be eager to see that whale resulting in more vessels in close contact with the whale than the guidelines suggest. Also, because vessels have to travel greater distances to see fewer whales, the whalewatching boats might travel at faster speeds to make up lost time. Another explanation for the low rate of commercial compliance Asmutis-Silvia offered was that when the current guidelines were written, many humpback whales were transiting through Stellwagen, and now there are few humpback whales and more fin whales. Due to the change in prevalent whale species in Stellwagen Bank and the lower number of whales, whalewatching vessels may be less concerned about the occurrence of ship strikes.[166]

Mason Weinrich, the Director of the Whale Center of New England, spends a lot of time aboard whalewatching vessels as a naturalist. From what he views on the water, he knows that commercial vessels do not always follow the voluntary guidelines, and a few vessels will break some of the guidelines more often than others. Most vessels avoid head on approaches of whales all of the time, while vessels will only sometimes comply with the guideline limiting the number of vessels in the close approach zone. Weinrich knows that the guideline stating that whalewatching vessels should post a dedicated watch within two

[166] Ibid.

miles of a whale is often ignored by commercial whalewatching vessels.[167] Susan Farady of the Ocean Conservancy has been on a whalewatch with Mason Weinrich as the naturalist. She remembers Weinrich making statements like "we are just going to hang back a little" while in the vicinity of a whale to explain to the passengers why the vessel was not going closer to the whale. Farady does not recall if Weinrich ever told the passengers that there are whalewatching guidelines that suggest safe viewing distances.[168]

One enforceable regulation involving whales in the Stellwagen Bank area is part of the ESA. It is a distance regulation requiring all vessels to stay more than 500 feet away from a North Atlantic right whale. This regulation is enforceable because the North Atlantic right whale is considered a critically endangered species. It is believed that there are between 200 to 300 North Atlantic right whales left in the world.[169] The North Atlantic right whale has been a protected species on the IWC list since 1935, yet between 1980 and today their population number has dropped by more than 700 individuals.[170]

The causes of this drastic drop in the North Atlantic right whale population are not entirely known, although it is believed that the causes are anthropogenic. North Atlantic right whales are prone to both vessel strikes and

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[167] Weinrich.
[168] Farady.
[169] Tora Johnson presentation on Entanglements, 22 March 2005, at the G.W. Blunt White library.
[170] Ellis, The Empty Ocean, 240

entanglements in fishing gear.[171] Because of the low population number the ESA sets a zero take limit on North Atlantic right whales, yet there are reports of at least one per year being killed.[172] Commercial whalewatching operators are well aware of the plight of the North Atlantic right whale, and therefore, are always in compliance with the ESA regulations.[173] As a testament to commercial whalewatching vessels' commitment to ensuring right whale safety, a vessel engaged in whalewatching has never reported striking a North Atlantic right whale.[174]

Most commercial whalewatching companies want to be responsible around whales because it is the whales that keep the companies in business. They have a vested interest in the well being of whales, and therefore, whalewatching captains feel that they always try to make sound judgment calls, even if they are not following the guidelines. It is also true that sometimes a captain with the best intentions will not comply with the guidelines because the operator can only control the vessel; s/he cannot control the actions of the whale.[175] While whalewatching companies want to act responsibly they also want to stay in business, so with the current non-enforceable guidelines competing companies are trying to offer passengers the closest look at whales. Operators that are trying to follow the guidelines risk losing customers to companies who ignore the

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[171] Johnson.
[172] Ibid.
[173] Captain Chip Reilly, Director of Safety at Boston Harbor Cruises, Boston, MA, personal communication, 23 February 2005.
[174] Asmutis-Silvia, personal communication.
[175] Wiley.

guidelines to get passengers a closer look at whales.[176] Also, commercial vessels are not the only vessels going whalewatching, there are also recreational whalewatchers.

Captain Chip Reilly, Director of Safety at Boston Harbor Cruises, says that recreational boaters are the biggest offenders of the guidelines. Every day during the summer months, commercial whalewatching vessels must contend with the pleasure crafts that follow them out to the whalewatching grounds.[177] Commercial whalewatching vessels are large and hard to miss, so recreational boaters will take advantage of the commercial vessels' ability to find whales.[178] The operators of these pleasure crafts do not know or do not care about the whalewatching regulations.[179] They zip around whales going way too fast, and recreational boaters are prone to committing irresponsible actions such as circling whales or driving directly over bubble nets that feeding humpback whales create to drive fish to the surface.[180] When there are recreational whalewatchers around commercial whalewatchers have very little incentive to comply with the recommended guidelines.[181]

Sanctuary Advisory Committee members have mixed feelings on how to increase compliance with the guidelines and provide better protection to whales. The whalewatching industry does not want to see enforceable regulations because

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[176] Farady.
[177] Reilly.
[178] Mary Loebig, naturalist, South Dennis, MA, e-mail interview, 23 October 2004.
[179] Wiley.
[180] Loebig.
[181] Carlson.

they feel they depend upon the well-being of the whales and do not want to harm them. The whalewatching industry also believes that the voluntary guidelines are "sufficient to protect whales from strikes."[182] But, one must remember that vessel strikes are not the only impacts whalewatching has on whales. Cetaceans are also subjected to *harassment* from whalewatching vessels, and regulations should be in place that protect whales from *harassment*. Weinrich believes that enforceable regulations would improve the level of protection that the sanctuary offers whales.[183] He also thinks that the level of protection that the regulations provide to whales depend upon what the regulations are. Weinrich believes that the current guidelines if turned into enforceable regulations would provide much better protection for whales in the sanctuary.[184]

Susan Farady agrees that regulations would bring about better whale conservation because commercial and recreational whalewatchers are much more inclined to behave within a reasonable boundary if they are told that the rules are enforceable. It is also human nature to not always follow rules that are merely suggested. She hopes that if enforceable regulations were enacted they would level the playing field for all commercial whalewatching companies because all companies would be aware of the regulations and be required by law to abide by the same rules. Therefore, all companies would offer trips limited to the same

[182] MMVS-Plan, 15.
[183] Weinrich.
[184] Ibid.

distance from a whale. Ms. Farady points out that the sanctuary is going to have to be creative in the methods they use for enforcement.[185]

Many SAC members including Captain Reilly and Regina Asmutis-Silvia do not think that the current guidelines could be enforced, so if they were made into regulations they would fail to better protect the whales. However, they both think that creating enforceable rules that all sanctuary users could agree to would better protect whales.[186] Captain Reilly believes that it would take federal regulations to create enforceable rules for vessels to follow in the vicinity of whales.[187] Carole Carlson points out that there are regulations in Hawaii and Alaska that are part of the ESA for humpback whales, but there are only guidelines for vessels traveling near humpbacks in the North East.[188] Therefore, federal regulations are probably not the whole solution to the issue of whalewatching's impact on whales in Stellwagen Bank.

Joanne Jarzobski believes that enforcement is the key to protecting whales in Stellwagen, since "just because you have enforceable regulations doesn't mean you are better protecting whales or getting better compliance UNLESS there is someone enforcing the rules." [189] Lisa Fox thinks that the whole problem is with who is supposed to be doing the enforcing and the lack of funding for the

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[185] Farady.
[186] Asmutis-Silvia, telephone communication, and Reilly.
[187] Reilly.
[188] Carlson.
[189] Jarzobski.

enforcement. Currently, the Coast Guard is in charge of enforcing the North Atlantic right whale regulations, the ESA, and the MMPA, but they have no money to actually enforce. Therefore, Lisa Fox thinks that she has only seen Coast Guard enforcement on Stellwagen Bank four or five times in the last two years.[190]

The other problem that sanctuaries have to deal with when creating enforceable regulations is figuring out to whom the regulations apply. Commercial whalewatching is an easy target in the whale harassment issue, but the commercial whalewatch operators are only a small part of a much bigger problem.[191] The whalewatching industry does not want to be targeted for regulations that would only apply to them, and by "creating regulations, which would solely impact commercial whalewatching within the sanctuary, or reduce the abilities of, at least, some companies to operate would not only reduce the public access to the sanctuary but would likely result in reduced conservation, research, and outreach, a direct conflict with the mission of the sanctuary."[192] Also, no other commercial industries that use the sanctuary waters want to have more regulations placed upon them.

If enforceable regulations were put into place they would have to apply to *all* sanctuary users because all vessels that transit through the borders of Stellwagen are in an area where whales migrating. The fact that twenty-six of the

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[190] Fox.
[191] Asmutis-Silvia, telephone communication.
[192] MMVS-Plan, A-14.

thirty-seven reported vessel strikes in the greater sanctuary area were caused by types of vessels other than whalewatching vessels illustrates that other vessels are also impacting whales. Many of the vessel types are unknown, but the incidents for which the vessel types are known have involved recreational vessels, a Navy ship, a merchant ship, a United States Coast Guard vessel, a ferry, and a container ship.[193]

Also, it is recreational whalewatchers who commit the most obvious acts of harassment towards whales, such as driving over bubble nets. By driving over the bubble net, a boat causes the humpback to abort their feeding or smash into the boat. Either way the vessel has caused a change in a humpback whale's behavior, and causing a change in behavior of a humpback violates both the MMPA and the ESA and constitutes a taking. Since it is recreational vessels that are most dangerous to whales, the enforceable regulations must apply to them.[194] If regulations do not apply to recreational boaters, they can use the excuse that when they broke the rules they were not whalewatching, but just happened to be in transit or fishing in an area where there were also whales. If a situation is created where a vessel must be engaged in whalewatching in order to be in violation of the regulations, commercial whalewatching vessels will be unfairly targeted and the majority of vessels endangering whales will not have to suffer any repercussions for their actions.[195]

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[193] Asmutis-Silvia, personal communication.
[194] Loebig.
[195] Asmutis-Silvia, telephone communication.

Stellwagen Bank formed a working group on marine mammal vessel strike to develop suggestions for the sanctuary management plan review that is currently underway. This group could not agree upon the course of action that should be taken in order to regulate whalewatching and better protect the whales in the sanctuary. Therefore, they have come up with several different options of what actions can be taken. The first action is to codify the existing guidelines in the new sanctuary management plan. Some of the members of the working group felt that by codifying the existing guidelines the rate of compliance would improve. The advantage of codifying the guidelines is that they are already known and understood by the whalewatching industry.[196]

A second method that members of the working group noted as a possibility is to use the same regulations that are used in Hawaii and Alaska with regards to approach distances to endangered species of whales.[197] In Hawaii and Alaska vessels may not get any closer than 300 feet to an endangered type of whale.[198] The third action that members felt could be taken was to issue "special use permits" to operators who pay to get trained in responsible boating. The "special use permits" would allow vessel go 100 feet from a whale. Members feel that "special use permits" would encourage people to get trained in responsible boating.[199] There are many issues concerning the legality of the "special uses

[196] MMVS-Plan, 16.
[197] Ibid.
[198] Ibid.
[199] Ibid.

permits" plan or any scheme that would involve incentives for education because of the limit control the sanctuary has over recreational boaters.[200]

The fourth suggested plan also involved education for whalewatch operators through a certification program. This program would not be mandatory, but it would be a good publicity tool for whalewatching companies that do get certified. In order to maintain their certification whalewatch operators would have to comply with the whalewatching guidelines.[201] The fifth suggestion made by the working group is to have increased compliance monitoring through unknown sanctuary observers aboard whalewatching vessels. These observers would then notify the vessel owner of any non-compliance that occurred aboard their boat.[202] A sixth method that some members think should be used is the creation of a Whale Watch Association, which would allow the sanctuary and the whale watch operators to work together on issues that are important to both parties.[203] Also, a Whale Watch association might give operators an added incentive to comply with the guidelines if compliance was a term of membership to the association.[204]

Stellwagen Bank also has a working group to focus on the issue of marine mammal behavioral disturbance for the sanctuary management plan review. This group had many ideas on how to inform the recreational and commercial boaters

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[200] Asmutis-Silvia, telephone communication.
[201] *Gerry E. Studds* Stellwagen Bank National Marine Sanctuary Mammal Vessel Strike Action Plan.
[202] Ibid.
[203] Ibid.
[204] Carlson.

about marine mammal behavioral disturbance. This paper will present only a few of them. The working group thought that the sanctuary could offer a "safe whalewatchers" class to educate recreational and commercial whalewatchers. As an incentive to get boaters to attend a "safe whalewatchers" class the sanctuary would allow certified boaters closers access to whales.[205] The sanctuary could pursue educating the public on whalewatching through youth involvement. The sanctuary realizes that they have access to "a great untapped resource" in schools and youth groups, and Stellwagen also realize that by educating youth they would also gain access to a new pool of volunteers for the sanctuary.[206]

Susan Farady and Regina Asmutis-Silvia both stated that as long as the sanctuary is using voluntary guidelines to help protect whales the general public must be better educated about the guidelines.[207] In an ideal world, the sanctuary would make guidelines available to every harbormaster, yacht club, and marina in the Stellwagen Bank region to hand out to all of their recreational boaters. But, the sanctuary does not operate in an ideal world with an unlimited budget, and conservation organizations are trying to make recreational boaters more aware of whalewatching guidelines through the "See a Spout, Watch Out" campaign.[208]

The goal of this campaign is try to provide brochures of the whalewatching guidelines out to as many recreational boaters as possible. The

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[205] Marine Mammal Behavioral Disturbance Working Group, *Gerry E. Studds* Stellwagen Bank National Marine Sanctuary Marine Mammal Behavioral Disturbance Action Plan (Stellwagen Bank, 2004), 5.
[206] Ibid., 7.
[207] Farady, and Asmutis-Silvia, telephone communication.
[208] Asmutis-Silvia, telephone communication.

"See a Spout, Watch Out" sponsors are also postering at yacht clubs and marinas in areas that have easy access to the sanctuary.[209] Also, there is now a ten-minute lecture on whalewatching guidelines during safe boater classes in Massachusetts. Mark Wiley believes there is one big problem with using education as the only way of getting recreational boaters to help protect whales. The problem is that everybody makes the assumption that education leads to behavior change, but nobody is really sure how much of an impact it has upon a person.[210]

Captain Reilly believes that education is not the solution for recreational boaters and that enforcement is the key because from what he sees recreational whalewatchers have a "blatant disregard" for whalewatching policies. Mason Weinrich agrees that education is not the solution and that better enforcement is needed. He believes that if there were people on the water watching boaters' actions and asking boaters, "what are you doing?", boaters would be more likely to think about their actions.[211] Regina Asmutis-Silvia has noticed that the presence of enforcement officials on the water makes people better behaved, and she believes that the sanctuary should have people on the water, not only to enforce regulations, but to also educate the recreational boaters about the whalewatching guidelines.[212]

Several people interviewed believe that commercial whalewatching operators do not need to be further educated about whalewatching guidelines

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[209] Asmutis-Silvia, telephone communication.
[210] M. Wiley.
[211] Weinrich

because they are all aware of them, and most operators make a conscious decision to either follow or ignore the guidelines. Since most commercial vessels provide some type of educational component to passengers and they have a captive audience that is interested in the topic, both Regina Asmutis-Silvia and Susan Farady think that the sanctuary could take better advantage of the commercial whalewatching fleet to educate the public about the sanctuary.[213] Mason Weinrich knows that the information given to passengers varies greatly between companies and between naturalists, but all naturalists try to send passengers away with an appreciation of whales and their habitat.[214]

Most of the scientists, conservationists, and educators on the SAC agree that Stellwagen is not doing enough to protect whales. According to Susan Farady, the Ocean Conservancy views Stellwagen as a "paper park," a designated area that on paper reads as if it is providing protection to its resources, but in reality provides very little protection to anything.[215] The Sanctuary's lack of action is frustrating to many parties with a vested interest in the area because Stellwagen Bank has the potential to provide great protection to all of the resources in its boundaries if only they set up regulations that are enforced within the sanctuary's boundaries. Regina Asmutis-Silvia believes Stellwagen has the

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[212] Asmutis-Silvia, telephone communication.
[213] Asmutis-Silvia, telephone communication and Farady.
[214] Weinrich.
[215] Farady.

ability to find funding through grants and community donors for any program that they want to establish to protect whales.[216]

Many parties also think that the sanctuary is doing the best they can to protect resources given their limited resources, and the complexity of the issues that the sanctuary is facing.[217] Creating a way to better protect whales is going to be very difficult because all of the stakeholders in the sanctuary have conflicting interests. When creating new regulations to protect whales the sanctuary is going to have to find a delicate balance between providing adequate protection and allowing multiple uses. The one thing that no stakeholder wants to see happen is a "tragedy of the cubical" where government officials set up regulations that they think will work without consulting the users of the sanctuary and fail to take into account whether the regulations are realistic or not.[218]

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[216] Ibid.
[217] Fox
[218] Asmutis-Silvia, telephone communication.

HAWAIIAN ISLAND HUMPBACK WHALE NATIONAL MARINE SANCTUARY

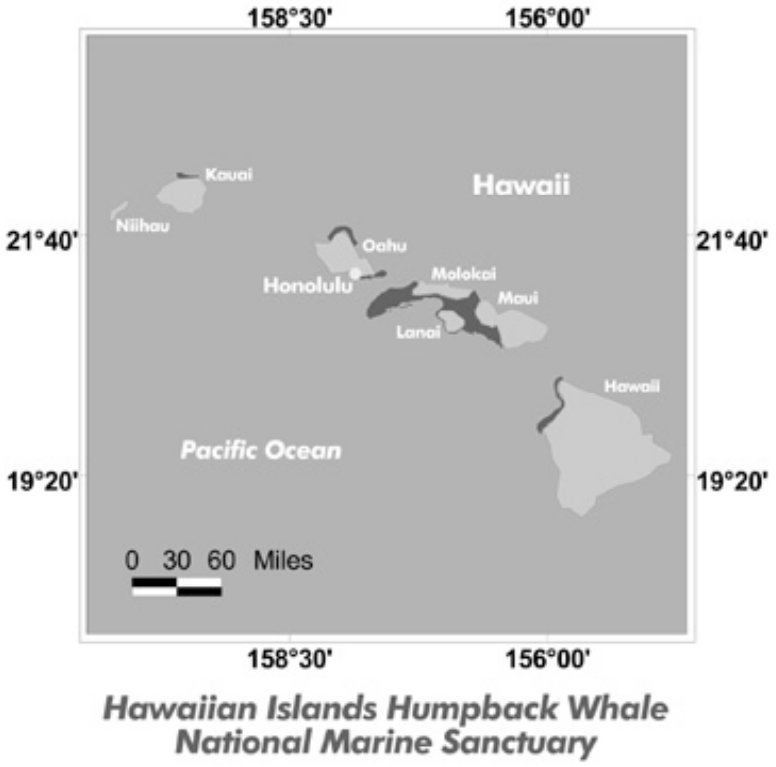

Figure 5- Hawaiian Islands Humpback Whale National Marine Sanctuary[219]

In March 1982, NOAA recommended to Congress that the waters around the major Hawaiian Islands be considered for designation as a National Marine

[219] Hawaiian Islands Humpback Whale National Marine Sanctuary [online resource] accessed 1 February 2005, available from http://www.sanctuaries.nos.noaa.gov/oms/omshawaii/omshawaii.html.

Sanctuary. Ten years later, on November 4, 1992, Congress designated these waters as Hawaiian Islands Humpback Whale National Marine Sanctuary (Hawaiian Islands). The sanctuary is composed of 1,218-square-nautical-miles of waters in five noncontiguous areas around the islands of Maui, Lana'i, Moloka'i, O'ahu, and the Big Island of Hawai'i.[220] For the following five years, NOAA and sanctuary employees wrote the regulations to govern the sanctuary, and on March 28, 1997, the government published the final regulations. The final sanctuary management plan went into effect on June 2, 1997.[221]

Between 1997 and 2002, Hawaiian Islands operated with the primary purpose of protecting humpback whales and their habitat. In 2002, the sanctuary underwent a five-year management plan review. The review process led to a revised management plan. The new management plan includes a revised vision statement by which the sanctuary guides its practices. The vision statement is:

> The Sanctuary works collaboratively to sustain a safe and healthy habitat for the North Pacific stock of humpback whales (*kohola*). As a community of ocean stewards, the Sanctuary strives to achieve a balance of appropriate uses, inspired care-taking, enlightened understanding, and effective education to ensure the continued presence of the *kohola* for future generations. The Sanctuary endeavors to do this with harmony, hope, respect, and *aloha o ke kai* (love of the sea).[222]

Hawaiian Islands aims to fulfill its vision statement and the mission of the NMSA by conserving and protecting humpback whales and their natural habitat. The

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[220] 15 CFR part 922.181
[221] Revised Management Plan.
[222] Ibid.

sanctuary also encourages research that will foster a better understanding of humpbacks and their habitat.[223]

Whalewatching is one of the primary ways that the public uses the sanctuary to learn about humpback whales. Through whalewatching, the sanctuary also contributes to the economy of the Hawaiian Islands. There is what is termed an "ocean tour boat industry" in Hawai'i.[224] This industry is made up of whalewatching trips, dinner cruises, snorkeling trips, and sunset cruises. The reason that all of these different activities are lumped together is because many dinner cruises, snorkeling trips, and sunset cruises also advertise that there is the possibility of seeing a whale.[225] An economic study of the ocean tour boat industry published in 2000 showed that roughly seventy-five percent of the customers going on dinner cruise leaving from Maui knew that there was the possibility of seeing whales.[226] Also, since whalewatching is a seasonal industry, many of the vessels that are used solely for whalewatching from December through April are used for other purposes during the rest of the year.

There has been growth in the "ocean tour boat industry."[227] In 1983, there were approximately thirty-nine vessels engaged in whalewatching in Hawai'i, and by 1999 there were fifty-two vessels that were committed to whalewatching

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[223] Ibid.
[224] McIntosh, telephone.
[225] Dan Utech, "Valuing Hawai'i's Humpback Whale: The Economic Impacts on Hawai'i's Ocean Tour Boat Industry," The Economic Contribution of Whalewatching to Regional Economies: Perspectives from Two National Marine Sanctuaries (Silver Springs, MD: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Marine Sanctuaries Division, 2000), 11. This is the most recent comprehensive data available.
[226] Ibid., 14.

during the peak season.[228] [229] These fifty-two vessels went on an average of eighty-seven trips per day, taking approximately 370,000 people out over the course of the entire season.[230] The direct revenue from whalewatching trips in 1999 was eleven million dollars.[231] Using the numbers obtained from the Utech study it was calculated that the whalewatching industry is able to support the equivalent of 280-390 full-time jobs. The entire "ocean tour boat industry" is comprised of approximately 100 companies that own a total of about 150 vessels and provide 3, 200 jobs.[232] An estimate of the total income that these vessels brought into the Hawaiian economy in 1999 was 225 million dollars in direct, indirect, and induced revenues.[233]

With so many boats connected to the "ocean tour industry," the effects of whalewatching and whalewatching-related activities on whales are a concern for the sanctuary managers. Research on whales in Hawaiian Islands has not decisively proven whether or not whalewatching is having effects on whales in the sanctuary. A study carried out by Au and Green showed that the noise that vessels create while whalewatching should not disturb the humpback whales as

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[227] Ibid., 14.
[228] RichardTinney, Review of Information Bearing Upon the Conservation and Protection of Humpback Whales in Hawaii (Arlington, VA: Richard Tinney & Associates, 1988) 12.
[229] Utech, 16. The facts from Utech's study are used in this paper because his study is the last one that provided an in depth analysis of the impact of whalewatching in Hawai'i.
[230] Ibid., 10.
[231] Ibid., 12.
[232] Ibid., 38.
[233] Ibid., 12.

long as vessels are complying with the 100 yard regulations.[234] Reginald White, Vice-President of Operations for Paradise Cruise, Ltd. and Superstar Hawaii Transit, believes that if whalewatching vessels follow the guidelines and regulations for Hawaiian Islands there should be zero impact on the whales.

The biggest impact of whalewatching that David Matilla, research coordinator at Hawaiian Islands Humpback Whale National Marine Sanctuary, has identified is that whalewatching has habituated the humpbacks to vessel presence.[235] Humpback whales in Hawaiian Islands are so comfortable in the presence of boats that they perform a behavior that Hawaiian whalewatching operators and scientists have named "mugging." Mugging is when a humpback surfaces and watches the whalewatching vessels.[236] Some would say that mugging is a negative impact of whalewatching, although one man in an interview said that whales behave this way because they "caught the aloha spirit."[237]

The reason that the individuals interviewed believe that there is not more impact upon the humpbacks is that Hawaiian Islands provides additional protection to whales through its enforceable whalewatching regulations. Humpback whales in Hawaii are provided with special protection under the ESA, as well as the National Marine Sanctuaries Act. Therefore, all of the humpback

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[234] David Mattila referenced a study by Au and Green during the telephone interview on 18 February 2005.
[235] Mattila.
[236] Reginald White, Vice-President of Operations for Paradise Cruise, Ltd., and Superstar Hawaii Transit, telephone interview 28 February 2005.
[237] Ibid.

whales which whalewatchers actively pursue are, in theory, well protected by enforceable regulations. The Coast Guard monitors the sanctuary waters using helicopters and small vessels to make sure that people are complying with the enforceable regulations.[238] NOAA Fisheries Office for Law Enforcement promotes Community Oriented Policing and Problem Solving (COPPS). COPPS is a method that encourages voluntary compliance through educating the public about laws pertaining to marine mammals.[239] Mr. White is a supporter of COPPS, and he believes that education and not punishment is the way to make recreational and commercial whalewatchers aware of how their actions affect the humpback whales.[240]

Even with the regulations and monitoring that Hawai‘i has to protect whales, violations still occur, and enforcing the regulations proves to be a difficult task. According to Naomi McIntosh, Sanctuary Manager, the sanctuary has not had major problems with commercial whalewatching companies causing harassment to whales. She believes that this is because the companies are interested in protecting the resource that they rely on for business and because they are very familiar with the whalewatching regulations that are place in sanctuary waters.[241] According to the individuals interviewed, the recreational

[238] Commander Robert Wilson, United States Coast Guard, telephone interview, 1 February 2005.
[239] Hawaii's Marine Protected Species a Handbook for Ocean Users, 5.
[240] White.
[241] McIntosh, telephone.

sector is more difficult to control than the commercial sector. It is harder for the sanctuary to communicate with recreational whalewatchers, many of whom are tourists renting kayaks and paddling out to see whales.[242] Coast Guard Enforcement Commander Robert Wilson stated that when his office receives complaints about people violating the whalewatching regulations, the majority are related to kayakers getting too close to humpback whales.[243] Naomi McIntosh finds the lack of regard or knowledge of regulations that the kayakers have troubling for kayakers because in addition to them breaking federal regulations, kayakers who violate the distance regulations are also putting themselves in harms way.[244] A kayaker who paddles too close to a humpback whale runs the risk of getting injured should the whale hit the kayak or create wake that capsizes the kayak.

Another problem the sanctuary faces is vessel strikes. The 2002 Revised Management Plan included a mandate to examine how vessels impact whales. One result of this mandate is a study published in 2003 by Lammers, Pack, and Davis from the Oceanwide Science Institute, Hawaii Institute of Marine Biology, and Kewalo Basin Marine Mammal Laboratory on the history of whale/vessel collisions in the areas that are now sanctuary waters. The researchers obtained data on vessel strikes by reading public records and surveying members of the

[242] McIntosh, phone.
[243] Wilson.
[244] McIntosh, phone.

maritime community. This study discovered twenty-two vessel strikes that were publicly reported between 1975 and 2003.

Thirteen of these incidents occurred between 1995 and 2003.[245] Many of the incidents that this study learned of were lacking in detail. However, it is conclusive that on February 15, 2001 a juvenile whale breached into a stationary vessel that was engaged in whalewatching, and again on March 15, 2002, a whale struck a stationary whalewatching vessel.[246] Then, on February 10, 2003, a whalewatching vessel hit a whale while going to the whalewatching grounds. The last incident included in the study occurred when a whalewatching boat, which was returning to port after sunset, struck a whale.[247] In all four of these cases there were no apparent injuries to the whales. Since this report was published in August 2003, there were three more vessel strikes that occurred between December 2003 and February 2004.[248]

In addition to commissioning a study on whale/vessel interactions in the sanctuary waters, Hawaiian Islands held a workshop from September 3-5, 2003 on "Management Needs to Minimize Vessel Collisions with Whales in the Hawaiian Islands Humpback Whale National Marine Sanctuary and other

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[245] Marc O. Lammers, Ph.D., Adam Pack, Ph.D., and Lisa Davis, "Historic Evidence of Whale/Vessel Collision in Hawaiian Waters (1975-Present)," (Hawai'i: OSI Technical Report 2003-01, 2003), 3.
[246] Ibid., 10.
[247] Ibid., 10.
[248] "Workshop Report on Management Needs to Minimize Vessel Collision with Whales in the Hawaiian Islands Humpback Whale National Marine Sanctuary and other National Marine Sanctuaries," (Maui, Hawai'i: United States Department of Commerce National Oceanic and Atmospheric Administration, 2003), 9.

National Marine Sanctuaries." At this meeting, participants identified three factors that they believed were leading to increased concern about vessel strikes in Hawaiian Islands. The first is the increasing vessel traffic in sanctuary waters; the second is the escalating speed of vessels as they transit sanctuary waters; and the third is the increasing size of the humpback whale population.[249] During the meeting, participants split up into three separate working groups to discuss large commercial vessels, commercial passenger and support vessels, and private recreational vessels. Each group discussed the unique issues there are associated with the different size vessels and then came up with recommendations on what can be done to minimize whale/vessel interactions.

The members of the commercial passenger working group came up with a list of actions that the sanctuary and commercial vessels currently perform that help to prevent vessel strikes. This working group believes that the sanctuary and operators are doing well educating vessel crews about responsible viewing.[250] The working group also stated that the sanctuary's Ocean Users Guide is beneficial.[251] The Ocean Users Guide is a booklet that the sanctuary publishes, containing the laws and guidelines that apply within sanctuary waters. The guide also has information on the endangered species that use the sanctuary and instructions on what a person should do if they see an injured or entangled animal. The working

[249] Ibid., 11.
[250] Ibid., 22.
[251] Ibid.

group also expressed the belief that for commercial operators, concern for the well-being of whales helps to prevent vessel strikes.[252]

The working group also discussed changes that could be made to improve the safety of whales in Hawaiian Islands. The working group felt that the sanctuary could enhance the education vessel operators receive by adding new workshops and materials. The working group thought that operators would have an even greater incentive to keep whales safe if the operators created an industry code of conduct.

The commercial passenger working group believed that the 100 yard regulations could be improved.[253] The members think that a clearer definition of approach in the 100 yard regulations would improve whale safety. They also mentioned that perhaps different wording of the regulations would improve people's understanding of the rule.[254] The commercial passenger and support vessel group also identified the need for the sanctuary to study vessel speeds to see how fast is too fast for a vessel to be moving. One other idea that the group discussed was the difference between transiting and approaching, and how these two words need to have clear and well-established definitions.[255]

The private recreational vessels group decided that more information would be necessary before any conclusions could be made about the role

[252] Ibid.
[253] Ibid., 22.
[254] Ibid., 22.
[255] Ibid., 22.

recreational boaters play in whale/vessel interactions. Therefore, this group's top priority is research on how recreational boater impact humpback whales, and its other priority is to continue creating and enhancing educational and outreach programs.[256] Among the ideas for programs that the sanctuary can run to educate recreational boaters about whale/vessel interactions is for the sanctuary to produce water-friendly supplements to the Ocean Users Guide. The group would also like to see the sanctuary provide all information in multiple languages.[257] The conclusion reached by all three working groups that participated in this workshop was that whale/vessel interactions were an issue to be aware of, but not a critical issue for Hawaiian Islands at this time. [258]

Naomi McIntosh, manager of Hawaiian Islands Humpback Whale National Marine Sanctuary, thinks that it is very important for the sanctuary to further investigate how many whale/vessel interactions are occurring and get a handle on the population level of the humpback whales.[259] McIntosh said that in 2003, sanctuary users sighted 300 more whales then were sighted in 1999, which translates to a growth rate of seven percent per year.[260] At the same time the whale population is expanding, so too are the number of vessels and the speeds of the vessels. Therefore, McIntosh stresses the importance of balancing the *take*

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[256] Ibid., 23.
[257] Ibid., 24.
[258] Ibid., 9.
[259] McIntosh, telephone.
[260] Ibid.

level with the level of the population. If the percentage of the humpback population that is being accidentally injured or killed by humans is rising, then it is important for the sanctuary to take additional steps to keep humpback whales safe in sanctuary waters.[261] McIntosh said that once more information about the size of the whale population and number of strikes that have occurred in the sanctuary is gathered, the sanctuary will take all steps they can to minimize the impact of vessels on whales. The sanctuary will take these steps if the information reveals that vessel strikes are a growing problem.[262] McIntosh believes that it is crucial to maintain an open line of communication between the whalewatching industry and the sanctuary employees. Communication is need so that both parties can learn more about vessel strikes and figure out a method to manage them, because neither sanctuary employees nor tour operators want vessel strikes to occur.[263]

McIntosh feels that stronger enforcement of the sanctuary's regulations is needed. Commander Wilson of the United States Coast Guard stated that it is "somewhat difficult" to prove *takings* of whales under the MMPA and ESA unless there is actual documentation in the form of a picture or a video.[264] Another challenge in enforcing the regulations is that a vessel can break the distance regulation for many different reasons. Commander Wilson realizes that

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[261] Ibid.
[262] Ibid.
[263] Ibid.
[264] Wilson.

it is not always the vessel's fault if it is comes closer than 100 yards from a humpback whale, and it is tricky to determine what events led up to a vessel breaking the distance regulation.[265]

White would also support the idea of more individuals being involved in enforcement of the whalewatching regulations. White thinks that the additional enforcement staff could be volunteers or government officials, but he believes that more enforcement staff should be focused on educating rather than disciplining whalewatchers.[266] White stresses the importance of education, because he suspects that the majority of violators are just ignorant about the policies. Therefore, additional enforcement staff could potentially educate recreational whalewatchers as they were leaving from the dock and prevent violations of the whalewatching regulations before they occur.[267]

Hawaiian Islands also strives to educate the public about humpback whales. There are many different aspects of the sanctuary's involvement with efforts to educate the public about whales and whalewatching. First, the sanctuary tries to teach both commercial and recreational whalewatchers about responsible whalewatching by running workshops and safe boater classes. Commander Wilson stated, that "education is the biggest thing that must be done to protect whales," and, because of its importance, the sanctuary and government agencies involved in the enforcement of whalewatching regulations make

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[265] Ibid.
[266] White.
[267] Ibid.

education a top priority.[268] Hawaiian Islands distributes brochures, pamphlets, newspaper inserts, and booklets to the general public to spread awareness of the whalewatching regulations. Currently, the sanctuary offers all materials free of charge to the general public and produces them in mass quantities.[269] For example, the sanctuary coordinated with a number of partners to produce a newspaper insert on the importance of the sanctuary and the traditional importance of humpback whales that was distributed to approximately 250,000 individuals and households.[270]

The sanctuary, in partnership with the State of Hawai'i Department of Land and Natural Resources and Hawaiian Ocean Safety Team, an organization made up of representatives from a wide array of marine related fields, is also beginning to display information about whalewatching regulations at launch docks all over the state. The goal of these posters is to inform recreational whalewatchers of the regulations before they get onto the water. Sponsors hope that in the future, this campaign will also work with kayak rental companies to stick decals on their equipment so that customers are reminded of the rules when they are in the sanctuary.

White hopes that in the future, as part of the safe whalewatching campaign, decals with the regulations printed on them can be sent out with boater

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[268] Wilson.
[269] McIntosh, telephone.
[270] Ibid.

re-registration forms as a reminder of proper whalewatching protocol.[271] Other long-term goals of the sanctuary are to show a video on safe whalewatching practices on hotel room televisions in Waikiki and to get local news programs to have a segment on safe whalewatching practices that the television stations air at the beginning of the whalewatching season.[272] Hawaiian Islands hopes that as it begins to figure out more precisely whom its target audience is, the sanctuary will be able to tailor the educational materials being offered to those users.[273]

Commercial whalewatching teaches the public about whales through the information that is given to passengers on whalewatching trips. Most of the commercial whalewatching vessels in Hawai‘i carry a naturalist on board in order to provide information on the sanctuary and its inhabitants to the whalewatchers. Commander Wilson conjectured that ninety percent or more of the commercial whalewatching operators in Hawaiian Islands would consider education to be one of their main goals.[274] Reginald White declared that education is one of the main goals of his whalewatching company.[275] The vessels operated by the company for which White works always carry trained naturalists as part of the crew. The company reviews the information naturalists are conveying to passengers several times per season to make sure that they are not deviating from the correct facts. White's company re-trains permanent employees at the beginning of each whalewatching season. The goal of Mr. White's company, Paradise Cruise, Ltd.

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[271] White.
[272] McIntosh, telephone.
[273] Ibid.

and Superstar Hawaii Transit, is to turn people from having a vague interest in whales into people who actively want to help protect the whales.[276] Unfortunately, as Naomi McIntosh attests, the quality of education aboard vessels varies greatly, and not all naturalists provide correct information about whales and the ecology of the sanctuary. One way to remedy this problem would be for the sanctuary to offer a free workshop to train naturalists, but Naomi McIntosh is worried that by providing the workshops, the sanctuary will be putting for-profit companies that train naturalists out of business.[277]

All individuals interviewed agree that the sanctuary is doing a good job of protecting the humpback whales. McIntosh, as sanctuary manager, feels that the sanctuary has gotten off to a very good start during its relatively short existence and looks forward to a growing education program to spread awareness of the sanctuary's purpose. She also thinks that many new policy solutions will have to be made as vessel technology changes.[278] Commander Wilson thinks that the sanctuary is taking all the steps that they can in order to provide the best protection possible to the humpback whales.[279] White considers education to be the key for getting the public to understand the importance of protecting humpback whales.[280]

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[274] Wilson.
[275] White.
[276] Ibid.
[277] McIntosh, telephone.
[278] McIntosh, telephone.
[279] Wilson.
[280] White.

POLICY RECOMMENDATIONS

Even though Stellwagen Bank National Marine Sanctuary and Hawaiian Islands National Marine Sanctuary both have primary goals of protecting whales and providing education to the public, the two sanctuaries are very different. Hawaiian Islands's vision statement and management plan are structured around protecting the humpback whale, while at Stellwagen Bank, whales are only one of the many natural resources that the sanctuary is supposed to be managing. Therefore, Hawaiian Islands can devote the majority of their resources to the protection of humpback whales, and Stellwagen must split time, energy, and funds among all of the natural resources they are managing. The cetacean populations in the two sanctuaries are also very different. Hawaiian Islands main goal is to protect humpback whales, while Stellwagen Bank is part of the migration route for at least seventeen different species of cetaceans, including five that are on the endangered list.[281]

Because Stellwagen and Hawaiian Islands are both committed to protecting whales, regulations, guidelines, and policies governing the sanctuaries must be revised to better prevent *harassment* and *takings*. Since Stellwagen Bank

[281] Ward, 143

and Hawaiian Islands are two very different sanctuaries with unique sets of problems to control, one management plan will not meet the needs of both sanctuaries. Two separate plans must be created, so that they are tailored to the individual needs of the sanctuaries. This chapter is going to present an analysis of the information collected in the interviews and suggest changes that the sanctuaries can make to strengthen the education that they offer people and the regulations they have in place to protect whales.

Ideas for Better Whale Protection in Stellwagen Bank

The biggest concern about the management of whales in Stellwagen Bank is that there is almost universal consensus among the individuals interviewed for this report that the sanctuary is not providing enough protection for the whales that migrate through the sanctuary boarders. Since Stellwagen Bank does have the authority to create more stringent rules and regulations for sanctuary waters, Stellwagen needs to take advantage of the sanctuary's potential ability to provide a high level of protection to marine mammals. One step the sanctuary could take to better protect whales is to enact enforceable regulations in its revised management plan. While not every user of the marine sanctuary would like to see enforceable regulations created to protect whales, the sanctuary must start living up to its responsibility and create enforceable regulations to better protect cetaceans.

The regulations that are created must apply to all sanctuary users. If regulations apply to just one sector of sanctuary users, whalewatchers, the

regulations would be difficult for officials to enforce. Regulations that apply to only one sector of users would be hard to enforce because recreational vessels use the sanctuary for many activities, and enforcement officials would have difficulty charging recreational whalewatchers with a violation of whalewatching regulations. As long as whale regulations apply to all sanctuary users every vessel in the sanctuaries would have to comply.

I believe that since Stellwagen is on the migration route of a diverse group of whales, the regulations that the sanctuary creates should divide the whale population into three different classes: critically endangered, endangered, and non-endangered. Each class should have different regulations that apply to the cetaceans in that class, and compliance within the sanctuary should be mandatory for all boaters. For the North Atlantic right whale, a critically endangered species, the following regulation should apply: no vessel within sanctuary waters should be able to approach any closer than 500 yards from the North Atlantic right whales. This distance is the same as the current federal regulation. This distance should remain because the species is critically endangered and prone to being injured and killed by humans.

Sei, blue, fin, and humpback whales are also endangered species that use Stellwagen Bank. The sanctuary should establish a 100-yard buffer zone in which no vessel is allowed to travel, unless the vessel is assisting a whale. Only one vessel should be allowed in the range of 100 to150 yards from an endangered whale at a time. This regulation could ideally prevent *harassment* of endangered

whales and prevent hearing problems. Two vessels should be permitted in the 150 to 200 yard zone at a time, and all other vessels must wait outside the 200 yard zone until a boater that is closer to the whale exits the 200 yard vicinity. From the information reviewed for this study, I have concluded that fewer vessels in close contact with a whale at one time would decrease the likelihood of a whale being *harassed* or *harmed*.

For all non-endangered whales in the sanctuary, vessels should not approach any closer than fifty yards. This is fifty feet farther than the current whalewatching guidelines suggest, but I think the extra fifty feet will help prevent *harassment and takings* of whales as defined by the MMPA. There should also be approach zone regulations for non-endangered whales. Only one vessel should be allowed in the fifty to 150 yard zone at a time, and two vessels should be allowed to be standing by in the 150 to 250 yard zone. In addition to the distance regulations for each class of whale, the sanctuary should also make the current suggested speed guidelines for whale watching vessels into enforceable regulations for all vessels.

I believe that the sanctuary should make the distance and speed regulations enforceable because these regulations make sense for all boats traveling the in sanctuary. Therefore, no one industry is being singled out and having regulations created that only impact them and their business. The regulations that I am proposing would have an impact on the whalewatching, shipping, and fishing industry, but the regulations would help the sanctuary to

achieve its goal of protecting marine mammals. The speed limit would cause large container ships to need to transit the sanctuary at a slower speed. Slowing down cargo ships would cost both time and money.[282] It currently costs companies between $25,000 and $100,000 a day to rent a vessel. Some vessels that travel through the sanctuary are restricted to transiting during daylight hours and/or high water hours. Reducing vessel speeds for whales could mean that it would take a vessel an entire extra day to transit the sanctuary because it would not be able to travel at fast speeds.[283] New regulations would also impact the research that takes place aboard whalewatching vessels because the researchers would not be able to go as close to the whales as they are currently going. New regulations might cause some scientists to apply for permits to take research vessels closer to the whales to supplement the research that they are doing from the whale watching vessels. If scientists feel they need to go closer to the whales, it will cost them more money to perform research projects.

The distance and speed regulations are important because if a vessel cannot get closer than fifty yards from whales, the chance of a vessel strike decreases. These regulations also take into account the fact that people do not always stick to the exact regulation, but if there is the threat of enforcement it is more likely people will stay within a reasonable range of what the regulations allows. As Regina Asmutis-Silvia says, people are not always going to follow the

[282] William C. Eldridge, Owner/operator, Peabody and Lane Corporation/ Mediterranean Shipping Company Incorporated, phone interview, 14 March 2005.
[283] Ibid.

speed limits on the highway, but as long as they have the knowledge that a police officer could give them a ticket they will stick within five to ten miles of the speed limit.[284]

The next action that the sanctuary should take is to get enforcement officials into the sanctuary waters since people are less likely to disregard the regulations if they know someone is around who could fine them thousands of dollars for breaking regulations. The only way enforceable regulations are going to work is if there is the threat of enforcement. While it is the Coast Guard's job to enforce the MMPA and ESA in Stellwagen Bank, it is also the responsibility of Stellwagen and NOAA. Between all of these organizations, I believe vessels in sanctuary waters should be seeing enforcement officials more than a couple times a year. The presence of enforcement is especially important in the summer months because there are so many recreational boaters in the sanctuary. Also, the summer months are the peak months for whales to migrate through Stellwagen.

The recreational boaters are going to be the hardest group of sanctuary users to inform about the regulations, so the sanctuary is going to have to work on strengthening its educational outreach program to recreational boaters. As Susan Farady stated, so many people do not even know that there is a marine sanctuary in New England. So how, she asks, are people ever supposed to know that there

[284] Asmutis-Silvia, phone.

are rules to follow within the boundaries of a place that they do not even know exists?[285]

Therefore, the first action Stellwagen should take is to start a publicity campaign to educate the general public that there is a National Marine Sanctuary in New England. This should be done using a variety of venues and means. One way to inform the local population about Stellwagen is to have local papers run articles on the importance of Stellwagen Bank. A second way would be to have short segments about Stellwagen on local public access television networks. The sanctuary could ask whalewatching companies to offer special trips to elementary, middle, and high schools in their communities to teach students about the ecology and history of the sanctuary. Stellwagen Bank could also ask the New England Aquarium to team up with them to do an exhibit on New England's only National Marine Sanctuary. The sanctuary could also sponsor poetry and essay contests in schools throughout New England in order to educate students and teachers about Stellwagen.

If Stellwagen is going to be successful in their goals of being a well known sanctuary that provides protection to marine resources, the sanctuary is also going to have to inform visitors about Stellwagen Bank. In order to do this Stellwagen should ask tour books about New England to include the sanctuary as a site of interest. Stellwagen should also try to get travel magazines to write articles about the whalewatching in the sanctuary. Stellwagen could also work

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[285] Farady.

with the hotels in the major port cities and towns near the sanctuary to get them to show a program about the sanctuary on the hotel television or hand out information on the importance of the sanctuary to hotel visitors. I think that once people know about and understand the goals of Stellwagen Bank National Marine Sanctuary, they would want to follow the additional regulations inside of the sanctuary in order to help the sanctuary meet their goal of providing protection to a wide array of natural marine resources.

Another sector that the sanctuary should try to work with is the commercial whalewatching vessels. The sanctuary could train the naturalist aboard whalewatching vessels to all give the same brief lecture on the history and goals of the Stellwagen. Additionally, during whalewatching season, the sanctuary could send out volunteers on whalewatching boats to distribute information and answer questions for the passengers. The sanctuary volunteers aboard whalewatching vessels might also make captains more likely to follow regulations because there would be an individual trained by and associated with sanctuary there to see any violations that vessels make.

Once the public is educated about the mission of Stellwagen, the next goal the sanctuary should have is to educate the public about the special regulations that apply to all vessels, including recreational ones, within the sanctuary boarders. This process is going to be harder than getting word out about the existence of the sanctuary because the target audience is a more select group of people, but it is also a more amorphous group. Not all recreational boats that use

the sanctuary waters are from Massachusetts and not all operators of the vessels are registered or certified in any way to be driving a boat. Therefore, Massachusetts' boaters are going to have to be the main target audience, but boaters leaving from locations in Maine, New Hampshire, Connecticut, New York, and Rhode Island will also have to be informed of the regulations.

The sanctuary would need to make sure that all harbor masters in the areas around the sanctuary are aware of the whale regulations in Stellwagen. The sanctuary could do this by running a training session at Stellwagen or by sending out information on the regulations. The information must then be transferred from the harbormasters to the boaters that leave from their harbors. This could be accomplished by providing the harbor master with information to hand out to boaters, as was suggested by Susan Farady, or harbormasters could organize local information sessions on the regulations.[286] The sanctuary would need to make sure that all posters and signs are prominently displayed at docks, yacht clubs, boat launches, and fueling/pump-out stations in the greater sanctuary area. I think that informing harbormasters and posting signs to educate boaters are realistic recommendations that the sanctuary could achieve.

Other ideas I have for improving recreational boaters' knowledge of the regulations involves direct communication between the sanctuary and the boaters. The sanctuary should mail stickers that have the regulations and illustrations of the different types of whales printed on them with boater registration forms in

[286] Farady.

Massachusetts. These stickers should be weatherproof so that they can be placed on the boat and used as a reference guide should the boater forget the exact regulations. The sanctuary should make boaters that register their boats or take safe boating classes in Massachusetts sign a form attesting to the fact that they have received information on the regulations and that they understand what the penalties for non-compliance are. These two methods would be difficult for the sanctuary to carry out on its own. If the sanctuary forms partnerships with other organizations and governmental agencies, these suggestions are realistic possibilities.

The sanctuary must also educate the commercial users about the new regulations. Commercial operators are an easier audience to target since there are records kept of the names of commercial users of the sanctuary. The sanctuary should run information sessions for all of the commercial industries to train them on the new regulations. Stellwagen should also provide a guide for all commercial vessels containing pictures of each species of whale and all of the regulations. The sanctuary could run a class for commercial vessel captains who want to receive a certification in Stellwagen regulations. As an incentive for commercial operators to get trained on the regulations, the sanctuary could post a list of certified commercial vessels on its web site.

In addition to the enforceable regulations, the sanctuary should create a revised version of the current whalewatching guidelines. The revised guidelines would include rules that only target whalewatchers. Therefore, it would be unfair

to make the revised guidelines into regulations because they would only impact one sector of the sanctuary's users. The voluntary guidelines would include suggestions that the whalewatching industry helps to create. The whalewatching industry would be more likely to comply with guidelines if the whalewatching operators actively participate in the creation on the rules. Based on my interviews with whalewatch operators, I believe that some of the guidelines that the whalewatch operators would agree with the rules for close approach and the suggested time limit for a vessel to stay in the close approach zone.

I do not think that whalewatchers would object to the time limit because there have been fewer whales in the sanctuary recently and more boats are eager to see each whale that is sighted. Therefore, it would be a common courtesy to not take too much time in the zone closest to the whale, since only one vessel can be in the close approach zone at time. The close approach guidelines already have a high compliance rate among the commercial whalewatch companies, and the commercial operators understand that if they do not follow the close approach rules they could end up *harassing* the whale and causing it to change course.

All of the recommendations I have proposed would make Stellwagen Bank National Marine Sanctuary a safer place for whales. The regulations would provide whales with better protection against injury and *harassment* from all vessels that use the sanctuary. The revised voluntary whalewatching guidelines would hopefully have a higher compliance rate. The ideas proposed to inform and educate the recreational and commercial users would hopefully make

everyone more knowledgeable about the purpose and special importance of the area. Through a combination of education and enforceable regulations, Stellwagen Bank could provide strong protection to cetaceans.

Proposed Plans for Hawaiian Islands Humpback Whale National Marine Sanctuary

All of the individuals interviewed from Hawaiian Islands agree that the sanctuary is currently providing adequate protection to whales. The high level of protection offered to whales in Hawaiian Islands is in part due to the fact that specific regulations to protect whales in the sanctuary are included in the ESA. I think that if the Hawaiian Islands added one more enforceable regulation for whalewatchers to follow, the whales would receive an even higher level of protection. The one regulation is to control the number of vessels in the close approach zone because humpbacks are showing signs of habituation to vessels. These signs are the "mugging" behavior, which is a behavior that is not exhibited by most humpback whales, and the frequency which humpback whales initiate closer contact with the vessels.

There are no easy answers to the questions of how habituation can be avoided, or how can whales that are already exhibiting signs of habituation can break their habits. I would suggest that allowing only one vessel to approach a whale in the 100 to 150 yard zone at a time, and only allowing two vessels to wait in the 150 to 250 yard zone could reduce the level of habituation whales in Hawaiian Islands experience. I am proposing this regulation because I believe

that humpbacks in Hawai‘i would have fewer vessels in the close approach zone to distract them from their natural behaviors. It is very possible that this regulation would not work to stop habituation because humpbacks might enjoy rubbing against the hulls of vessels to remove barnacles from their backs, or they might already be too used to vessels.

Since the biggest offenders of the regulations are recreational kayakers, the sanctuary should start a stronger campaign to educate kayakers. Many of the individuals who are going kayaking in the sanctuary are tourists who are going in rental kayaks. An ideal place to inform this subsection of kayakers of the regulations would be at the kayak rental shops. The employees of the rental shops would have to inform the kayakers that they are not to approach any closer than 100 yards from a whale for the safety of the whale and for the safety of the kayaker. The kayak shop should stress the fact that the 100 yard rule is a federal regulation, and the fact that if a kayaker is caught violating the regulation s/he is subject to the punishments of the ESA. The program to educate rental kayakers could be run through NOAA because it promotes the ideals of Community Oriented Policing and Problem Solving.

Tourists should also be informed about the presence of the sanctuary and of the role it plays in preserving native Hawaiian culture through protecting the humpback whale. Since most tourists fly to Hawai‘i, an easy way for the sanctuary to reach a large percentage of the tourists would be by showing an in-flight educational video. The in-flight video should be shown in a variety of

languages so that it could be understood by a larger array of visitors. This idea would be realistic if the sanctuary could form partnerships with the airlines servicing the main islands. A second way that the sanctuary could reach many tourists is by providing information on the sanctuary in hotel rooms. This information could be in the form of a magazine, a pamphlet, or a show on the hotel's television channel.

I also learned that Hawaiian Islands is having trouble with naturalists on commercial vessels. The naturalists are not all trained to the standards that the sanctuary would like to see, so not all naturalists are able to offer passengers the same quality of educational experiences. The sanctuary is worried about offering mandatory trainings for naturalists because it does not want to put the people that currently train naturalists out of business. Therefore, the sanctuary should make it mandatory that the sanctuary certifies all naturalist trainers. The sanctuary can do this by offering courses to the trainers to teach the trainers what knowledge a naturalist should be armed with before the naturalist starts working on commercial whalewatching vessels. This solution does not put the naturalist trainers out of business nor does it cost the trainers any money, so it is a win/win situation for the trainers. The trainers get better educated, and they are allowed to continue to train naturalist.

CONCLUSION

I believe Stellwagen is not currently fulfilling its goals of educating the public and protecting whales against *harassment* and *takings*, and that Hawaiian Islands could take additional measures to provide even better protection to whales and education to the public. The recommendations made in this paper, if enacted, would hopefully create better protection for whales in Stellwagen Bank National Marine Sanctuary and Hawaiian Islands Humpback Whale National Marine Sanctuary. Since marine sanctuary managers and NOAA have the ability to create regulations specifically adapted to each individual marine sanctuary, it is time that sanctuaries start taking advantage of their special designations. A National Marine Sanctuary should be offering more stringent protection to the species that it is supposed to manage. Stellwagen and Hawaiian Islands should start offering better protection now because the future for whales is uncertain. By implementing better whalewatching regulations, the public can continue to learn about a whale population that is recovering and responding well national and international policies.

The sanctuaries can also start to better educate the public about the goals of National Marine Sanctuaries and whalewatching. Stellwagen and Hawaiian Islands should also make sure that naturalists on commercial whalewatching

vessels are well trained. Naturalists who are versed and knowledgeable about whalewatching should provide quality information to passengers. Public education about whales is essential to preventing future generations from repeating mistakes made by past generations with regards to use and abuse of whale populations.

Every year the demands for the IWC to lift the indefinite moratorium on whaling are getting more numerous and louder, and the scientific evidence that whale populations are growing is making some members of the IWC think that whaling quotas should be reinstated. The reinstatement of legal whaling quotas through the IWC could have an especially high impact on the whales that migrate through regions where there is a lot of whalewatching, since whales that are habituated to whalewatching are not afraid of vessels. These curious and friendly whales would be easy targets for whaling vessels. In the next few years, the IWC is going to have some critical decisions to make, and these decisions are going to determine whether the IWC is issuing whalewatching regulations or whaling quotas. At this critical time in the history of human-whale interactions National Marine Sanctuaries should aim to provide the highest quality of education available to the public on whales and their habitats, and National Marine Sanctuaries should also give whales areas where they are protected from all threats.

TABLE OF FIGURES AND TABLES

PREFACE

The original idea for this project started out innocently enough. The idea was to find a topic that involved education, marine policy, and "charismatic megafauna." I wanted to examine an issue that involved both education and the oceans because I wanted to produce a final product that incorporated both disciplines of my marine education concentration. My third requirement for my topic, "charismatic megafauna," was added simply because I love the phrase. I have even been known to include it in conversations where the phrase has no relevance, such as, "I believe copepods are the 'charismatic megafauna' of the plankton world." To avoid the problem of uninvited "charismatic megafauna" showing up in my research, I set out to find a topic that addressed it directly. Therefore, at the end of summer 2004, Katy Robinson Hall, professor of Marine Policy at Williams Mystic and my thesis advisor, suggested that I look at whalewatching. Whalewatching matched all three of my established criteria, making it a perfect topic.

I walked out of Katy's office at the end of my first conversation with her feeling pretty confident about the topic I'd selected. I was going to research whales. Yes, this is all I had decided for sure when I left Katy. Once I started to

research I realized that there were many, many things I could learn about whales, and there was no way that I could learn all of them in less than nine months. So, I started to narrow the focus of my research to whalewatching policy in marine sanctuaries. I realized two things at this point: (1) there are a lot of marine sanctuaries in the world, and (2) I had some more work to do in order to get to a workable topic.

After many more tries, I finally decided to focus on three main points: 1) the impact of whalewatching on whales in Stellwagen Bank National Marine Sanctuary and Hawaiian Islands Humpback Whale National Marine Sanctuary; 2) the current policies in the two sanctuaries protecting whales from whalewatchers; 3) the way commercial and recreational whalewatchers are educated about whalewatching policies and the way commercial whalewatching companies educate their passengers. I also decided to limit my research to whalewatching from boats, not planes, and in the United States, not the rest of the world.

After settling on my topic, it occurred to me that I could not talk about whalewatching without also including some history on whales and a little bit of whale biology and a tad about marine ecotourism, and… well, you see I realized that I was going to have to take a truly interdisciplinary approach. So, what I present to you now are the results of an interdisciplinary examination of whales and whalewatching.

THE PURPOSE AND METHODS

On the fifth day "God created great whales, and every living creature that moveth, which the waters brought forth abundantly," and so it was that whales populated the world's oceans in vast numbers until recent times.[1] The number of whales has been declining since the Norse figured out that whales could be hunted to produce food between 800-1000 AD. A couple of hundred years later the Basques realized that humans could also produce oil and baleen from whales that could be sold and traded on the commercial market. As knowledge of what could be produced from whales spread to other European countries, hunting intensified. Early hunts targeted whales that were easy to catch and slaughter, but, as the human population grew, so did the demands for whale products. Hunts grew more extreme to meet the growing demand. Soon, with fewer whales in the world's oceans, whaling voyages grew longer and traveled farther. Then, before whalers could believe, there were very few easy-to-catch whales left, leading whalers to develop technologies that allowed them to hunt these more elusive whales.

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[1] The Book of Genesis, 1:21.

In time, because whale populations were getting smaller even the hardest to catch whales became difficult to find in any ocean around the world. Humans had captured and killed the majority of the world's whales to feed the human appetite for whale oil and baleen. It was only once the majority of the planet's great whale population was teetering on the brink of extinction that humans began to recognize the enormous consequences of their actions against whales. So, hunting of whales slowed down, and scientists and environmentalists became interested in learning about whales and preserving them. A desire to reverse the damage that they had done to whales led to many changes in humans' treatment of whales.

This study provides an interdisciplinary investigation of the evolution of the regulation and policy that has been adopted to better preserve and protect whales in the United States' waters. In researching this paper my first objective was to find out why marine sanctuaries are so special and whether, because of their elevated status, they should be providing better protection to whales within their borders. I also wanted to learn how sanctuaries go about educating commercial and recreational whalewatching operators and the general public about the importance of marine sanctuaries and whales. In addition to how the sanctuaries educate these various constituencies, I was interested in how commercial whalewatching operators educate their customers. Finally, I hoped to understand how sanctuary users perceive a sanctuary's effectiveness in protecting the natural resources within its borders. Based on this research and analysis, I

will synthesize my findings to create a set of recommendations for what sanctuaries can do to improve their education programs and, ultimately, better protect whales.

This study focuses on two of the thirteen United States National Marine Sanctuaries, Stellwagen Bank National Marine Sanctuary (Stellwagen) and Hawaiian Islands National Marine Sanctuary (Hawaiian Islands). Investigating two sanctuaries allows for an in-depth examination of each one as well as comparisons between the two. The study presents to the reader a wide array of information collected from government documents, peer-reviewed journals, books, various media outlets, and, most importantly, primary research, including personal interviews and correspondences.

For the personal interviews I spoke and corresponded with members of the Sanctuary Advisory Committee (SAC) for both Stellwagen and Hawaiian Islands. All sanctuaries have SAC's, which make recommendations and provide guidance to sanctuary managers. SAC's are generally comprised of diverse groups of people, including representatives of governmental agencies and organizations interested in the issues that affect each sanctuary. Based on their individual expertise and research in a variety of fields, SAC members make recommendations to sanctuary managers. The members are interested because the marine mammal guidelines and regulations that are created impact all sanctuary users. Each member of the SAC represents a field in which s/he has a

wealth of knowledge.[2] SAC members represent most of the opinions in the whalewatching debate.

The Stellwagen SAC consists of fifteen voting members and two non-voting governmental members. There are also fourteen alternative voting members and five alternative non-voting members. The voting members represent research (2), conservation (2), education (2), marine transportation, recreation, whale watching, fixed-gear commercial fish, mobile-gear commercial fish, business/industry, and at-large (3) opinions. All members have a vested interest in the whales that migrate through Stellwagen Bank because policies created to control humans' behavior around whales affect all sanctuary users.

A scientist who focuses on the study of whales and conducts research into the effects of whalewatching fills one of the research representative positions. Currently, the primary member filling this seat is Mason Weinrich of The Whale Center of New England. The alternate member for this seat is Porter Hoagland, a researcher at the Woods Hole Oceanographic Institute. The conservation members are all employees of organizations that are working to protect whales and their natural habitats. The organizations represented are the Ocean-Conservancy, the Conservation Law Foundation, the International Fund for Animal Welfare, and the International Wildlife Coalition. The education

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[2] Naomi McIntosh, "The Hawaiian Islands Humpback Whale National Maine Sanctuary Advisory Council: Expanding Protection through Community Involvement," Endangered Species Update 16, No. 5 (1999): 103.

representatives on SAC come from the Center for Marine and Coastal Studies, local universities, and the Waquiot Bay National Estuarine Research Program. The marine transportation, recreation, business, industry, and whale watching representatives are from companies that provide services inside of Stellwagen, and have wide-ranging concerns about the impact of more stringent protection of whales on their businesses and livelihood. The fixed and mobile gear commercial fishermen also have an interest in how new regulations to protect whales would impact their fishing methods. At-large members provide insight on community feelings towards the sanctuary policies. The non-voting members consist of state and federal government officials who are involved in enforcing laws and regulations. The government agencies that are represented are the United States Coast Guard, National Marine Fisheries Service, New England Fisheries Management Council, and the Massachusetts Environmental Police.

The Hawaiian Islands SAC consists of twenty-four voting members, with ten alternates and six non-voting members. Of the twenty-four voting members, fifteen of them are non-governmental representatives. Four of the fifteen non-governmental positions are filled by residents from Hawai‘i County, Honolulu County, Kaua‘i County, and Maui County. The conservation representative is Lou Herman, director of the Kewalo Basin Marine Mammal Laboratory. Herman has been studying humpback whales in Hawaii since 1975. Reginald White, the whalewatching representative, is very involved in marine activities in Hawaii, and he has been a professional involved with maritime activities since 1949. Michael

Stanton is the tourism representative. He works for Atlantis Submarines, a company based in Kona. The research representative, Marc Lammers, is President and Research Director of Oceanwide Science Institute. Lammers is interested in the ecology of marine mammals. The education representative is Jeanne Russel. She is a teacher at the Island School. A business and commerce representative, a citizen at large representative, a commercial shipping representative, an ocean recreation representative, and a native Hawaiian representative fill the other non-governmental positions.

The remaining nine voting positions are occupied by government officials representing the State of Hawai‘i Department of Land and Natural Resources, State of Hawai‘i Department of Business and Economic Planning (2), State of Hawai‘i Department of Health, Western Pacific Regional Fishery Management Council, U.S. Army Corps of Engineers, State of Hawai‘i Office of Hawaiian Affairs, State of Hawai‘i Department of Transportation, and United States Coast Guard. In addition to the twenty-four voting members there are six non-voting positions that are filled by people associated with Fagatele Bay National Marine Sanctuary (Tutuila, American Samoa), National Marine Fisheries Service, Hawaiian Islands Humpback Whale National Marine Sanctuary, Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, and State of Hawai‘i Department of Land and Natural Resources.

All participants were asked many questions related to their field of expertise, whalewatching, and education during the interviews. Between

individuals some of the interview questions varied. In addition to the specific questions posed to each interviewee about their field, seven general questions were included in every interview conducted (See Appendix A- Interview Questions). The seven questions allowed me to gauge how many different opinions about whalewatching policies, education, and sanctuaries there were. After conducting interviews and finishing my research, I came to the conclusion that whalewatching regulations and policies governing the Hawaiian Islands and Stellwagen are not sufficiently protecting whales. I believe that revised policies will better prevent harassment of whales due to whalewatching. Additionally, as part of enforcing the new regulations, a more effective system for educating both commercial and recreational whale watchers must be implemented.

A HISTORY OF HUMAN-WHALE INTERACTIONS

The history of human exploitation of whales is a story of the "tragedy of the commons." The "tragedy of the commons" – first described by Garrett Hardin in his landmark article of the same name that appeared in the journal Science in 1968 – results from everyone wanting to exploit a public resource to the greatest extent possible.[3] Until the twentieth century, the world's whale population was unregulated and open to any person who chose to hunt whales. Many people did decide to do so, motivated by the substantial profits that could be made in the whaling business.[4]

In order to understand why some whales were targeted by hunters while others were not, it is important to know a little bit of whale biology. There are nine main families of cetaceans: Balaenidae, Balaenopteridae, Eschrichtiidae, Physeteridae, Monodontidae, Ziphiidae, Delphinidae, Phocoenidae, and Platanistidae. Balaenidae, the right whales, Balaenopteridae, the rorquals, and Eschrichtiidae, the gray whales, are all members of the suborder Mysticeti or the

[3] Garrett Hardin, "The Tragedy of the Commons," Science 16 (1968):1243.
[4] K. Radway Allen, Conservation and Management of Whales (Seattle: A Washington Sea Grant Publication Distributed by University of Washington Press, 1980), 10.

baleen whales.[5] When killed, the baleen whales provide baleen or whalebone, which in fact is not bone but keratin. The baleen is what Mysticeti use to strain krill and other small food out of the ocean to eat. The other six families belong to the suborder Odontoceti, the toothed whales.[6] This group of whales, which includes the sperm whale, provides no baleen, but theses whales do provide teeth, which are used for scrimshaw. The sperm whale also produces a superior type of oil, spermaceti, from the fluid in the whale's head. The species of whale hunted at a given period in time depended heavily upon both economics – the demand for specific whale-based products – and the technology available to hunters.

Whaling-The Early Years

The first evidence of a culture taking advantage of the abundant whale population available to them was with the Norsemen. These early whalers hunted off of the Tromsö coast.[7] It is believed that the Norsemen started hunting whales for subsistence between 800 and 1000 AD.[8] The whales also provided them with oil for lighting and baleen for boat building and jewelry making.[9] During this time period, from 800-1000 AD, it appears that whaling may have been unique to the Norse culture.

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[5] Rus Hoelzel, ed., Marine Mammal Biology: An Evolutionary Approach, (Oxford: Blackwell Science, 2002), 6-10.
[6] Ibid., 10.
[7] Richard Ellis, Men and Whales (New York: The Lyon Press, 1999), 41.
[8] Allen, 10.
[9] Ellis, Men and Whales, 41.

It was not until the beginning of the thirteenth century that whaling began to spread, when the Basques began to practice whaling in order to provide European countries with smokeless oil to burn and whalebones for clothing. The Basques started hunting whales in the Bay of Biscay and eventually traveled as far as Newfoundland in pursuit of the great leviathans.[10] Though the Basques first started whaling to provide food and oil for their own use, it was not long before the Basques turned whaling into an industry to serve other European countries. The Basques created markets for whale meat and blubber.[11] They turned the blubber into oil, which was in turn used to make soap, to tan hides, to make paint, and to burn for lighting.[12] On Lenten days, the Basques would consume whale meat. Whale meat also served as a cheap food source for the poor. The Basques pursued whales until it became uneconomical, and in this process they may have caused the first and only extinction of a modern species of whale, the Atlantic gray whale.[13]

Interested Dutch and British soon began launching voyages to the whaling grounds with the help of Basque harpooners. Early whalers using harpoons and sailing vessels could capture only the slowest of the whales and could only process whales that floated when killed.[14] This left

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[10] Richard Ellis, The Empty Ocean (Washington, D.C.: Island Press, 2003), 238.
[11] Ellis, Men and Whales, 44.
[12] Ibid., 44.
[13] Ibid., 45.
[14] Ellis, The Empty Ocean, 238.

only the Balaenidae and Eschrichtiidae to hunt, and by the mid-1600s Basque whaling had decimated the right whale population in the Bay of Biscay. While the precise quantity of whales killed by Basque whalers is unknown, right whales disappeared from the Bay of Biscay while the Basques were still whaling and have never returned.[15] The end of Basque whaling did not mean the end of whaling in Europe; the Dutch, French, and English all continued to whale.

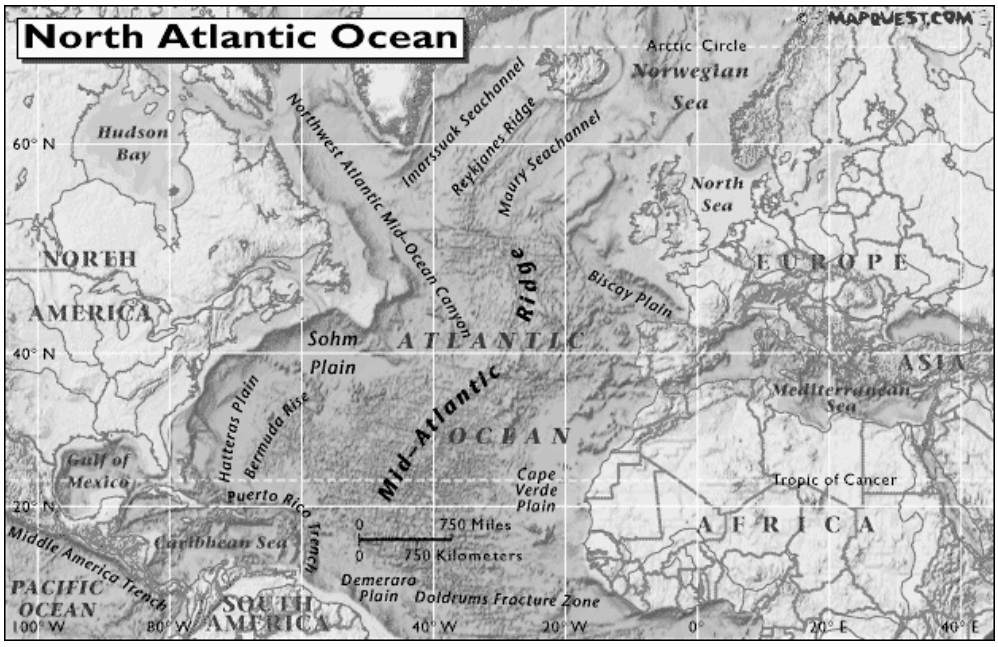

Figure 1- Map of North Atlantic[16]

The practice of commercial whaling expanded as European countries colonized other parts of the world in the fifteenth through nineteenth centuries. On December 21, 1620, the English colonists aboard the Mayflower spotted right

[15] Kieran Mulvaney, The Whaling Season: An Inside Account of the Struggle to Stop Commercial Whaling (Washington, D.C.: Island Press/Shearwater Books, 2003), 51.
[16] North Atlantic Ocean [online resource] accessed 2 April 2005, available from www.mapquest.com.

whales in the waters around Cape Cod and decided to set up their colony in Plymouth rather than continuing on to Virginia.[17] The whales factored into the Pilgrims' decision to stay in Massachusetts because they believed where there were whales, there would be fertile fishing grounds.[18] With the Pilgrims, the practice of whaling for profit arrived at the eastern seaboard of what would later become the United States of America. Before the arrival of colonists, Native American tribal peoples in the Pacific Northwest such as the Makah and Salish had been hunting whales as a source of food. The Wampanoag, Nauset, Rockaway, Meroke, and Massapequa tribes of the northeast did not actively hunt whales, but would consume the meat of beached whales.[19]

Beginning in the early seventeenth century, colonists on Cape Cod and Long Island began to hunt right whales and humpback whales that swam close to the coast in order to produce oil and baleen to trade with England.[20] New Englanders hunted these two species of great whales because they moved slowly, and they were buoyant. The right whale is so named because it was the "right" whale to kill.[21] Right whales produced a poor quality of oil that colonists did not find ideal to use in candles or soaps, but the oil was traded with England, where it

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[17] Ellis, Men and Whales, 99.
[18] Ibid., 99.
[19] Daniel Vickers, "The First Whalemen of Nantucket," The William and Mary Quarterly 3rd ser. Vol.40, No.4 (1983): 561.
[20] Ibid., 562.
[21] Mulvaney, 51.

was used to light the streets of London. Right whales also provided baleen that dressmakers used in women's clothing.[22]

In the late seventeenth century, colonists on Nantucket became involved in the whaling industry. From the 1690s until the 1720s, Nantucket colonists pursued right whales that swam close to shore, because early whaling took place from on-shore. A lookout positioned at a shore station would sight a whale, and the shore station would send out a long boat to kill the whale. The long boat would then bring the whale back to shore to be "tried out".[23] Trying a whale is the process by which the blubber is rendered, creating oil. As right whales and humpbacks became sparser in near-shore waters, colonists built and outfitted sloops for longer voyages. These voyages went as far as the Grand Banks and Davis Strait. The sloops were equipped with try works so that the whalers could process dead whales aboard the vessel.[24] The extensive whaling that occurred in the North Atlantic from the 1600s until the late 1700s caused the right whale population to collapse.[25]

In 1712, a storm blew Captain Christopher Hussey's whaling vessel farther from the shore of Nantucket than it normally went. While this vessel was

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[22] Vickers, 562.
[23] Robert G. Albion, William A. Baker, and Benjamin W. Labaree, New England and the Sea, (Mystic, Connecticut: Mystic Seaport Museum, Inc., 1994), 30.
[24] Ibid., 31.
[25] Allen, 12.

venturing back across the waters off the coast of New England to Nantucket, it came across a sperm whale and killed it. From this experience whalers on Nantucket learned that sperm whales produced a much higher quality of oil than the right whale. People could use the oil from sperm whales to make fine quality candles and soap, to make steel, and to lubricate machinery. From Captain Hussey's mishap and discovery, the sperm whale industry was born.[26]

As a result of the over-hunting of whales along the New England coast and in most of the Atlantic Ocean, and because of whalers' desire to catch sperm whales, whaling voyages needed to be longer and longer, and whalers traveled farther and farther from their home ports. By the early 1800s, vessels from New England were regularly visiting Hawai'i on their way to more exotic locations while they were out on three-year expeditions. There would be as many as 500 to 800 ships in the ports of Hawai'i at any point in time during these years.[27]

In the mid-1800s the the right whale stocks in the Southern Hemisphere collapsed.[28] Whalemen had continued to hunt right whales after the discovery of the sperm whale because sperm whales do not supply baleen, which was still in demand for making corsets and hoopskirts.[29] Also, in 1846, the size of the American whaling fleet peaked; there were 736 whaling vessels in the United

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[26] Ellis, The Empty Ocean, 237.
[27] Allen, 11.
[28] Ibid., 12.
[29] Ellis, Men and Whales, 135.

States.[30] In the late eighteenth century and through the nineteenth and twentieth centuries whaling was a global business. Voyages out of New England went as far as Australia to capture whales, because whale stocks were so depleted in whaling grounds closer to American shores. The more depleted the whale stocks became, the longer it took whaling voyages to fill their holds.

In or around 1860, the whaling industry began shifting its focus away from sperm whales. It is not clear whether this was a product of the collapse in sperm whale stocks or because sperm whale oil was simply no longer in high demand following the discovery of petroleum in 1859.[31] Between 1863 and 1864, the amount of sperm and whale oil consumed by the United States dropped from 3,090,000 gallons to 1,267,000 gallons, while the amount of petroleum consumed rose from 155,874 gallons to 22,064,000 gallons.[32] The discovery of petroleum did not signal the end of whaling, although it did push the whaling fleet to modernize. As petroleum caused the price of whale oil to drop, whalers needed to catch more whales in order to make a profit.[33]

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[30] Albion, Baker, and Labaree, 116. There are different statistics on the number of whaling vessels that were in the United States at the peak of whaling. The numbers range from 729 (Allen, 12) to 736. The number of individuals working in the whaling industry also differ greatly between sources; in New England and the Sea it is stated that 12,000 people worked in the whaling industry in 1860, while in Conservation and Management of Whales it is stated that 70,000 people worked in whaling at it's peak.
[31] Allen, 11.
[32] Albion, Baker, and Labaree, 118.
[33] Ellis, Men and Whales, 234.

Technology in the Hunt

Many technological changes took place during the height of the whaling era, from 1800-1900, which had enormous impacts on the efficiency of the whaling fleet. The toggle harpoon, invented by Lewis Temple, was the first major invention that impacted the whaling fleet.[34] The toggle harpoon was a major improvement upon the fixed head harpoon that all whalers had used since the beginning of European whaling. A fixed head harpoon would pierce a whale's skin but then would commonly slip out in the chase that followed the harpooning. The Temple toggle harpoon would go into the whale's body the same way as a fixed harpoon, but once the whale began to pull on the harpoon, a small piece of wood that had been holding the harpoon straight would snap, and the toggle would turn on its side. The turning of the toggle on the harpoon would create a ninety-degree angle between the toggle and the whale's skin making it much harder for the harpoon to slip out of the whale.[35] In an article that was published in the Whalemen's Shipping List, and Merchants' Transcript on May 31, 1853, a whaleman reports that "In the capture of these twenty-one whales but *eight harpoons* were used, and not one lost… The harpoons used were toggle-irons."

[34] The Kendall Institute, "Lewis Temple and Harpoons" [online resource], accessed 1 December 2004, available from http://www.whalingmuseum.org/kendall/heros/temple/index.html.
[35] Sidney Kaplan, "Lewis Temple and the Hunting of the Whale," The New England Quarterly 26, No.1, (1953): 81.

The fact that the whaling voyage used only eight harpoons is amazing because the average whale ship was supplied with 150 harpoons for a four-year voyage.[36]

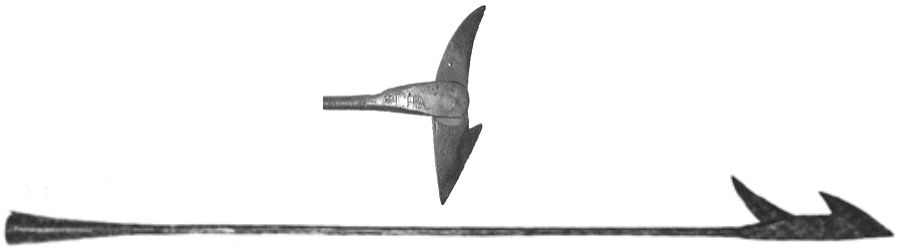

Figure 2- Temple Toggle Harpoon[37]

Svend Føyn, a Norwegian, created the next major invention in 1864. Føyn invented the harpoon gun and explosive harpoon. Whalers had the luxury of being able to hunt all species of great whales with harpoon guns. Whalemen no longer need to worry about hunting the floating species of whales because the harpoon gun attached to the bow of the vessel. Once the whale died the whaling vessel could immediately retrieve it. Also, the explosive harpoon caused more damage to the whale than a traditional or toggle harpoon, because it struck the whale with great force and caused more extensive internal injuries upon impact. The harpoon gun and explosive harpoon also cut down on the amount of time it took for a whale to die. Traditional whaling techniques, which used a harpoon, a

[36] Thomas G. Lytle, Harpoons and Other Whalecraft, (New Bedford, Massachusetts: The Old Dartmouth Historical Society, 1984), 35-36.

lance, and rowers, took many, many hours to kill a whale. In one account of a traditional hunt, it took a sperm whale twenty-three hours and fifty minutes to die.[38] It took just fifteen to twenty minutes for a whale to be killed with the explosive harpoon and harpoon gun.[39]

Whaling ships began the transition from sail power to steam power in the mid-1800s. Steam-powered ships were fast enough to catch any species of whale. The faster moving, sinking species of whales were not hunted prior to these inventions. Before the era of steam ships, the small rowing boats used had not been able to keep up with the faster whale, and the human powered boats did not have the strength to bring a sinking whale back to the mother ship to be processed.[40] The combination of the harpoon gun, explosive harpoons, and steam powered vessels allowed whalers to catch any type of whale species that they chose to pursue. Before these inventions whalers hunted only five of the ten great whales. These five, the right, sperm, humpback, gray, and bowhead whales, were the slowest and most buoyant of the great whales. After these inventions were introduced, whalers could hunt the other five great whales, which

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[37] Thomas G. Lytle, "Toggle Irons" [online resource], accessed 2 April 2004, available from http://www.whalecraft.net/Toggle_Irons.html.
[38] David Day, The Whale War (San Francisco: Sierra Club Books, 1987), 147.
[39] Phillips, 84.
[40] Glenn Gordinier, Lecture on History of Whaling at University of Massachusetts Field Station on Nantucket, 2 April 2004.

are the blue, fin, sei, Bryde's and minke whales.[41] These inventions led to the Scandinavians being able to kill one thousand fin whales a year by the 1880s.

Armed with the new whaling technologies, voyages set off towards a new hunting ground, Antarctica. Whalers descended upon Antarctica after hearing reports of waters filled with cetaceans, and because it was the only unexploited whaling ground left in the world. The first commercial whaling expedition to Antarctica led by Captain Anton Larsen of Norway took place in 1904. Captain Larsen set up the whaling station on South Georgia, Antarctica.[42] In the 1904 season 183 whales were killed: 149 humpback whales, sixteen fin whales, eleven blue whale, and seven right whales. Between 1904 and 1910, the whaling station on South Georgia took 28,408 whales. The species breakdown of the whales taken was 1,738 blue whales, 4,776 fin whales, and 21,894 humpback whales.[43] Humpback whales are the slowest of the rorquals and the easiest to hunt from shore stations, and for this reason, they constituted the largest percentage of the catch.

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[41] James T. Carlton, Lecture on Species of Whales at University of Massachusetts Field Station on Nantucket, 2 April 2004.
[42] Mulvaney, 53.
[43] Ibid.

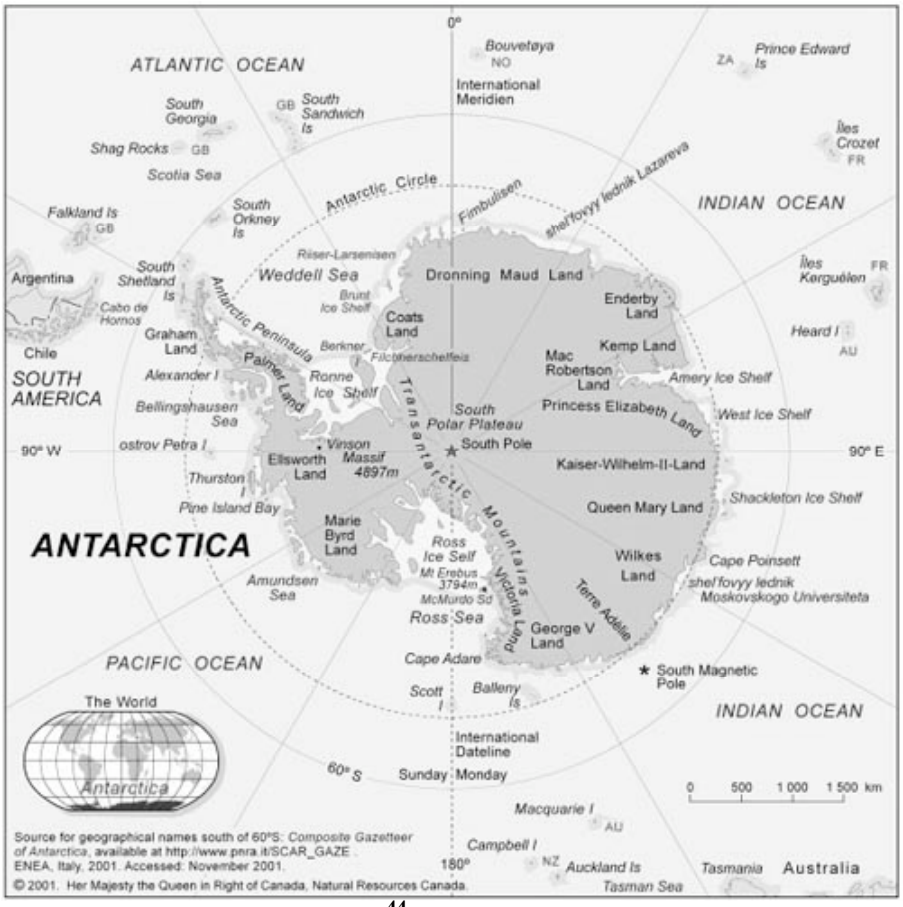

Figure 3- Map of Antarctica[44]

The last major technological innovation that benefited the whaler was the invention of the modern whaling factory ship in the early 1920s. Modern whaling factory ships have stern slipways, which allow the entire whale carcass to be brought on board, butchered, and tried. The invention of the modern whaling factory ship was the beginning of the end of whaling because it allowed so many whales to be captured and killed with so little effort. In 1925, a modern whaling

[44] Only-Maps, "Map of Antarctica" [online resource], accessed 2 April 2005, available from http://www.only-maps.com/antarctica-map.html.

factory ship, *Lancing*, from Norway was sent to spend the whaling season in Antarctica for the first time. From 1920 to 1931 with the invention of the factory ships and because of the great demand for whale oil, production of whale oil increased tenfold.[45] Between 1925 and 1930, Argentina, Denmark, Germany, the United States, and Britain became involved in factory ship whaling in Antarctica.[46]

By 1965, the entire commercial whaling fleet could only find twenty blue whales off Antarctica. What makes this figure so astonishing is that just thirty-four years earlier whalers had killed 1,000 blue whales off the port of South Georgia.[47] Modern whaling ships killed 46,000 whales in Antarctica during the 1937-1938 season. In the 1964-1965 whaling season whalers killed just 30,000. The huge drop in the number of whales caught is one sign of the massive devastation that factory ships caused in the Antarctic.[48]

Attempts at Conservation

In 1946, the United States marked a major shift in governmental policies when it took steps to change the goal of conservation from a means to protect the whaling industry to a way to preserve the whale population. The first of these steps was the organization of the International Whaling Conference.[49] Fifteen

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[45] Howard Scott Schiffman, "The Protection of Whales in International Law: A Perspective for the Next Century," The Brooklyn Journal of International Law Vol. XXII: 2 (1996): 3 [journal online], accessed 27 September 2004, available from http://web.lexis-nexis.com.
[46] Ellis, Men and Whales, 365.
[47] Mulvaney, 54.
[48] Allen, 12.
[49] Ibid., 9.

countries came to Washington, D.C. to attend this Conference.[50] The Conference resulted in Australia, Canada, Denmark, France, Iceland, Mexico, the Netherlands, New Zealand, Norway, Panama, South Africa, Sweden, Great Britain, the United States, and the Soviet Union, creating the International Convention for the Regulation of Whaling (Convention), which was signed on December 2, 1946 and went into effect on November 8, 1948.[51] The main purpose of the Convention was to develop a plan to guarantee the indefinite continuation of whaling. To meet this goal the Convention established the International Whaling Commission (IWC).

During the early years of the IWC, between 1948 and 1972, the organization was best described as a "big game shooting club" where members met once a year, before the start of the whaling season, to set quotas on the Blue Whale Units that could be caught that season.[52] Blue Whale Units (BWUs) were a measurement scale that made two-and-a-half humpbacks or six seis equal to one blue whale.[53] The BWU system allowed the IWC to set the number of units to be taken, but not the number of whales or country-by-country quotas.[54] The quotas that were set were a "gentleman's agreement" to play by the rules.[55] The biggest

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[50] "International Whaling Commission" [online], accessed 7 December 2004, available from www.iwcoffice.org.
[51] Mulvaney, 116.
[52] Day, 27.
[53] David Hunter, James Salzman, and Durwood Zaelke, International Environmental Law and Policy Second Edition (New York: Foundation Press, 2002), 978-979.
[54] Ellis, Men and Whales, 404.
[55] Day, 27.

problem that the IWC faced was that the gentlemen were not sticking to the agreed upon numbers, and there was no enforcement mechanism by which the IWC could force individual countries to comply with the agreed upon quotas.[56] So, despite the early attempts at conservation, whalers killed record numbers of whales in the1950s and 1960s. It was not until the early 1970s that the IWC finally started to play a role in conserving whales.[57]

The progression of whale species caught by whalers over time exemplified the urgent need for quotas. When looking at the species caught over time one sees a trend moving from whalers only catching the most economically desirable whales to whalers catching less desirable and less economically valuable whales.[58] The whaling industry technically collapsed well before the invention of any modern whaling technologies. By the time modern whaling started only the less desirable species of whales were left to hunt, but within years of the start of modern whaling even the less desirable species were on the brink of collapse. This quick decline in stock numbers occurred because of the ability of factory ships to kill many whales in a short period of time. Between 1792 and 1913, the New England whaling fleet killed 36,908 whales. Between 1910 and 1966, the Soviet and Japanese modern whaling fleets killed 261,505 whales. In short, it took a small portion of the world's modern whaling fleet just fifty-six years to kill

[56] Ibid.
[57] Schiffman, 5.
[58] Allen, 12.

almost eight times as many whales as it took 744 Yankee whaling vessels 1,665 voyages and 121 years to catch.[59]

Blue whales dominated the whale catch in the 1930s, but by 1965 their stock numbers were so low that the IWC began to regulate the catches. Fin whales, which were once the most abundant whale in the Southern Ocean, underwent a rapid decline and collapse in the 1960s. In 1958, whalers started to hunt sei whales, which were not desirable because of their small size, and by 1964 the IWC put restrictions on the number of sei whales that the commercial whaling fleet could kill. The whalers started to hunt the minke whale last. Whalemen did not start to hunt minke whale in large numbers until 1971 when the IWC had strictly regulated all other whale populations.[60]

The Call for Preservation

Between the 1950s and 1970s, whaling became less popular with the general public in North America and Europe for a number of reasons. First, people were producing petroleum and other synthetics that replaced whale oil in products. The first substitute for whale oil was coal gas, which people could use as fuel for lamps. Then, in 1859, Edwin Drake invented a method to drill for petroleum in Pennsylvania. Petroleum was a cheaper and more accessible replacement for whale oil. [61] Scientists discovered that the oil from the jojoba

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[59] Ellis, The Empty Ocean, 248-249.
[60] Allen, 13.
[61] Albion, Baker, and Labaree, 118.

plant had the same characteristics as spermaceti oil, and manufacturers could use jojoba as a substitute in cosmetics and lubricants.[62] Also, the style of clothing that baleen had been needed to produce had fallen out of fashion.

The growing environmental awareness of residents in industrialized countries led to a realization by the general public that whaling created a major environmental problem: rapidly declining whale populations. Marine biologists were also beginning to better understand whales. They discovered that whales have brains six times bigger than the human brain.[63] Scientists also realized that whales have very complex methods of hunting and communication and that whales have a very fragile life cycle with a low birth rate and a low death rate.[64] Natural mortality rates for fin whales are only four percent per year, and sperm whales have a natural mortality rate of six percent per year.[65] Scientists realized that population dynamics were the reasons that stocks were not replacing themselves as they were hunted to collapse.

Additionally, people in the United States and many other countries were beginning to develop a sense of "larger ecological awareness" and "biocentrism."[66] The biocentric mindset caused people to think about how their

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[62] Day, 141.
[63] Schiffman, 320-322.
[64] Ibid.
[65] Allen, 9.
[66] Schiffman, 7.

actions would affect not only other humans but also of how they would impact all living creatures. Individuals' greater awareness of the uniqueness of whales led to the formation of grassroots environmental groups that started waging a war on whaling.

Another driving force behind the changing attitude toward conservation was the American media. Between 1964 and 1968, Flipper was a popular nationally televised show in the United States. The star of the show was a dolphin with which many Americans fell in love with. The media introduced Americans to more whales as the environmental movement gained momentum. The environmental movement used whales as poster "charismatic megafauna" because people like and can sympathize with these large animals.[67] In 1972, the environmental movement had a victory in the battle against whaling when the United States passed the Marine Mammal Protection Act and outlawed all whaling done by United States companies, three and a half centuries after whaling first began in American waters.

Three years later, on June 27, 1975, a small rag-tag environmental group called Greenpeace staged the first open ocean action against whaling. While peaceful protestors in their zodiacs tried to protect a whale from whalers, the Russian whalers launched a harpoon over their heads and into the whale.[68] Television channels around the world aired the footage of this event, which

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[67] Brian Garrod and Julie C. Wilson, eds., Marine Ecotourism: Issues and Experiences (Clevdon: Channel Viwe Publications, 2003), 3.

garnered additional support for the anti-whaling movement.[69] By 1977 the "Save the Whales" movement had successfully helped reduce the world's pelagic whaling fleet to two, one ship operated by Japan and the other by Russia.[70] The next highlight in the war on whaling came when Australia, a former whaling country, declared that whaling was morally wrong.[71]

Then in 1978, came a discovery that disheartened the anti-whaling movement. The discovery was of the "pirate whalers" that operated in the Atlantic Ocean. In 1975, Nick Carter, environmental activist and author, discovered one pirate whaler, but environmental activists did not know about the existence of the whole fleet until 1978.[72] The "pirate whaling" fleet was combination killer-factory ships with complicated histories that made it almost impossible to trace the ownership or actions of these vessels. These vessels operated outside of the law, with an utter disregard for the preservation of whales. They would kill as many whales as they could, regardless of species, size, or age. For two long years the anti-whaling movement worked to destroy the "pirate whaling" industry, and by 1980 the whales in the Atlantic were safe from pirates.[73] The ultimate victory for the "Save the Whales" movement came in 1982 when the IWC passed an indefinite moratorium on commercial whaling.[74]

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[68] Day, 12.
[69] Ibid.
[70] Ibid., 15.
[71] Ibid., 19.
[72] Ibid., 39.
[73] Ibid., 23.
[74] Ellis, Men and Whales, 442.

THE INVENTION AND GROWTH OF THE WHALEWATCHING INDUSTRY

The United States whalewatching industry began in 1950 when Cabrillo National Monument in San Diego, California, was designated as a spot for public viewing of Pacific gray whales. The first recorded commercial whalewatching trip took place at Cabrillo National Monument in 1955.[75] On this trip, which cost just one dollar per passenger, people enjoyed a closer look at the migrating Pacific gray whales. In 1955, almost 10,000 people went commercial whalewatching off the coast of San Diego.[76] The popularity of commercial whalewatching in California led to the expansion of the industry. In 1975, Al Avellar, owner of a commercial sport-fishing vessel in Provincetown, Massachusetts, started taking people whalewatching on Stellwagen Bank. Whalewatching in Stellwagen Bank proved to be very popular, and the industry there has been steadily expanding since 1975.

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[75] Brad Barr, "Forward," The Economic Contributions of Whale Watching to Regional Economies: Perspectives From Two National Marine Sanctuaries (Silver Springs, MD: United States Department of Commerce, National Oceanic and Atmospheric Administration, Marine Sanctuaries Division, 2000),3.

[76] Wikipedia, "Whale Watching"[online resource], accessed 30 November 2004, available from http://en.wikipedia.org/wiki/whale-watching.

At the same time whalewatching was growing in the United States, the concept of "ecotourism" developed. In 2002, ecotourism was defined by David Weaver, author of Ecotourism, as

> a form of tourism that fosters learning experiences and appreciation of the natural environment, or some component thereof, within its associated cultural context. It has the appearance (in concert with best practices) of being environmentally and socio-culturally sustainable, preferably in a way that enhances the natural and cultural resource base of the destination and promotes the viability of the operation.[77]

Well run ecotourism attractions educate current tourists while protecting the environmental resource for the future.[78] Since ecotourism is relatively new, there are few rules and regulations guiding the development of the industry.[79] Therefore, there are many opportunities to create sound policies that will ensure the preservation of natural resources through ecotourism.[80]

Whalewatching, if well managed, has the potential to be a viable form of ecotourism. One key element of ecotourism that many commercial whalewatching trips already include is an educational message. Because many of the commercial trips include educational elements whalewatching is an ideal way to educate the public about the dangers whales face.[81] Whalewatching provides the ultimate bridge from "caring about the environment to caring for the

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[77] David Weaver, Ecotourism, (Milton, Australia: John Wiley and Sons, 2002), 15.
[78] David A. Fennell and Ross K. Dowling, eds., Ecotourism Policy and Planning, (Cambridge, Massachusetts: CABI Publishing, 2003), 15.
[79] Ibid., xiii.
[80] Ibid., 5.
[81] Constance L. Russell and Derek Hodson, "Whalewatching as Critical Science Education?," Canadian Journal of Science, Mathematics and Technology Education (2002): 490.

environment."[82] Whalewatching provides an opportunity for people to become more involved in learning about their environment because it takes them out of classrooms and books and into the world where they get to see firsthand how whales live in their natural environment. In theory, whalewatching is an amazing method to teach people about the marine environment and cetaceans, but an opportunity is missed if a commercial whalewatching operator does not provide information to the whalewatcher.[83] Ideally a commercial whalewatch trip should include an educational narration or a pamphlet that leaves passengers more informed about the issues concerning whales and the global marine environment.[84]

Two locations in which commercial and recreational whalewatching is very popular are Stellwagen Bank and Hawaiian Islands. Stellwagen and Hawaiian Islands are just two of the thirteen United States' National Marine Sanctuaries created under the National Marine Sanctuaries Act of 1972.[85] Congress or the National Oceanic and Atmospheric Administration (NOAA) designate sanctuaries based on an area's ecological, esthetic, or historical importance. A principal function of both Stellwagen and Hawaiian Islands is to provide protection to the whales that migrate through their waters. Stellwagen is along the

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[82] Ibid., 487.
[83] Ibid., 492.
[84] Ibid., 495. and Garrod, 2.
[85] National Marine Sanctuaries Act16 U.S.C. section 1431-1434.

migration route of many different species of cetaceans, including humpback, right, and fin whales (See Table 1). Whales use the waters in and around Stellwagen Bank for feeding and nursing. Many humpback whales go to the Hawaiian Islands to mate. Both sanctuaries aim to provide greater protection to whales than the Marine Mammal Protection Act and the Endangered Species Act, while at the same time striving to provide multiple uses in the sanctuary waters. Because of the elevated level of protection provided to whales in these two National Marine Sanctuaries whalewatching should be regulated by the principles of ecotourism.

North Atlantic Right Whale	*Eubalaena glacialis*
Finback Whale	*Balaenoptera physalus*
Sei Whale	*Balaenoptera borealis*
Blue Whale	*Balaenoptera musculus*
Humpback Whale	*Megaptera novaeangliae*
Minke Whale	*Balaenoptera acutorostrata*
Sperm Whale	*Physeter macrocephalus*
Killer Whale	*Orcinus orca*
Pilot Whale	*Globicephala melaena*
Beluga Whale	*Delphinapterus leucas*
Atlantic White-sided Dolphin	*Lagenorhynchus acutus*
Harbor Porpoise	*Phocoena phocoena*
White-beaked Dolphin	*Lagenorhynchus albirostris*
Bottlenose Dolphin	*Tursiops truncates*
Risso's Dolphin	*Grampus griseus*
Common Dolphin	*Delphinus delphis*
Striped Dolphin	*Stenella coeruleoalba*

Table 1- List of Cetaceans Sighted in Stellwagen Bank

Marine sanctuaries in the United States currently face five common problems: inadequate funding, understaffing, bureaucratic interference, excessive

arguments over what incompatible uses should be prohibited, and difficulty patrolling the waters of the sanctuary.[86] These five problems all contribute to National Marine Sanctuaries not providing adequate protection to whales. Because of the understaffing and financial difficulties, commonly there is not enough education to ensure that whales remain safe from recreational and commercial whalewatchers. Due to the lack of funding, it is hard for the sanctuaries to provide adequate enforcement on the water of its whalewatching regulations. Another difficulty that National Marine Sanctuaries face in creating a safe environment for whales is the number of parties with vested, yet diverse, interests in the sanctuary area.[87]

The whalewatching that began in the 1950s is now "an almost universal human passion" with commercial whalewatching in eighty-seven countries and overseas territories.[88] Whalewatching is one of the few activities that is truly global, with whalewatching trips run on all seven continents. In many locations, commercial whalewatching has replaced whaling, while in other nations where whaling is still practiced, whalewatching is popular.[89] Hoyt, a senior research associate with the International Fund for Animal Welfare, compiled the most

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[86] Gary A. Klee, The Coastal Environment Towards Integrated Coastal Marine Sanctuary Management (Upper Saddle River, New Jersey: Prentice Hall, 1999), 80.
[87] Ibid., 81.
[88] Erich Hoyt, Senior Research Associate with the International Fund for Animal Welfare, Whale Watching 2001 Worldwide Tourism Numbers, Expenditures, and Expanding Socioeconomic Benefits, A Special Report from the International Fund for Animal Welfare [online resource], (2001): 23, accessed 27 September 2004, available from http://www.ifaw.org/ifaw/dfiles/file_106.pdf.
[89] Ibid., 1.

recent survey of global whalewatching in 2001. The findings show that thirty-four IWC member nations have whalewatching industries, and in 2001, eight-six percent of the world's total whalewatching took place in these thirty-four countries. Between 1991 and 1998 the number of individuals participating in whalewatching rose from four million to nine million. This increase can be linked to a growing interest in whales as well as the expansion of whalewatching locations. The most through and most recent estimates of worldwide whalewatching industry profits were $299.5 million in 1998. The whalewatching industry has grown since that time and is expected to continue to grow. With the expansion of the industry, more people will have the opportunity to see the beauty of whales in their natural habitat and learn about marine ecosystems, whale habitats, and scientific research.[90] The growth of the whalewatching industry also means more vessel traffic and an increased risk of harassment to whales.

The first twelve centuries of the human-whale relationship were dominated by human abuse of whales. The actions taken by environmentalists, the IWC, and individual governments over the last thirty-five years shows a growing commitment to the well-being of cetaceans. In the future, interest in whalewatching will hopefully continue to grow. A steady interest in whalewatching and improved regulation of the industry will together guarantee that the public remains educated about whales and interested in preserving them.

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[90] Promoting Responsible Whalewatching [online resource] accessed 3 February 2005, available from www.ifaw.org/general/default.aspx?oid=32698.

Since individuals who choose to go whalewatching are for the most part interested in protecting whales, it is important that the rules and regulations protect whales from being "loved to death" by whalewatchers.[91]

[91] Nathalie Ward, Stellwagen Bank A Guide to the Whales, Sea Birds, and Marine Life of the Stellwagen Bank National Marine Sanctuary (Camden, Maine: Down East Books, 1995), 2001.

RULES, REGULATIONS, AND LAWS: THE POLICIES BEHIND WHALEWATCHING

The International Whaling Commission

In 1946, the International Whaling Conference drafted the International Convention for the Regulation of Whaling (Convention), which went into effect on November 8, 1948. The Convention states that the two goals of the IWC are to (1) conserve the whale stocks and (2) to insure the manageable development of the whaling industry.[92] The IWC is charged with meeting these goals by collecting and analyzing data on whale stocks and making recommendations on what whale stocks need more protection.[93] As guidelines for the IWC, the Conference created articles detailing the purpose of the IWC and regulations for ruling itself. The conference also created a "schedule" of regulations, which lists the whales protected by the Conference and what the IWC is supposed to do to regulate the whale stocks. The writers of the Convention created many rules for the IWC that , in reality, left the IWC with very little governing power (See Appendix B- International Convention for the Regulation of Whaling).

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[92] Robert L. Friedheim, ed., Towards A Sustainable Whlaing Regime (Seattle: University of Washington Press, 2001), 4.
[93] Hunter, 979.

Fifteen countries, with varying degrees of interest in whaling, participated in the development of the conference.[94] The Conference did not give the IWC autonomus enforcement authority, rather, the Conference delegated enforcement to the individual member states. Each nation must make sure that it controls whaling vessels flying its flag and report all violations that occur to the IWC. Second, Article V of the Convention gives the IWC the right to amend "the Schedule by adopting regulations with respect to the conservation and utilization of whale resources."[95] The IWC is allowed to make changes to the "schedule" that alter the protected species list, whaling season, sanctuary areas, and types of gear that is allowed to be used. A third interesting technicality of the Convention is that Article VII provides the right to "scientific permits" for whaling, which allow individual governments to issue permits to vessels carrying their flag to kill whales regardless of a species' status on the IWC's protected species list.[96] The last notable provision in the Convention is found in Article XI, and it is the ability of objecting countries to withdraw from the Convention as long as the notice is timely.[97]

The IWC was ineffective for many years, until 1972, when the IWC started to conserve whales. The move towards conservation started when the

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[94] The fifteen countries who participated in the Conference are Australia, Canada, Denmark, France, Iceland, Mexico, the Netherlands, New Zealand, Norway, Panama, South Africa, Sweden, Great Britain, the United States, and the Soviet Union.
[95] International Convention for the Regulation of Whaling, Article V, 2 December 1946, 62 Stat. 1716 U.N.T.S. 72 (entered into force 10 November 1948) [hereinafter "Convention"].
[96] Ibid., Article VII.
[97] Ibid., Article XI.

IWC finally stopped using the Blue Whale Unit system.[98] The IWC's decision to stop using the BWU was made after the IWC suspended the hunting of blue whales in 1965 because the BWU system had caused whalers to focus on killing blue whales. The IWC abandoned the BWU system and moved to setting quotas for individual species and individual nations. Also, in 1972, at the United Nations Conference in Stockholm, Sweden, the UN passed a ten-year moratorium on whaling with unanimous consent. When the fourteen members of the IWC met in 1972 they voted on the United Nations' proposal, and the proposal was rejected by a vote of four yeas (America, Britain, Argentina, and Mexico), six nays (Japan, Russia, Norway, Iceland, South Africa, and Panama), and four abstentions (Australia, Canada, Denmark, and France).

By 1973 the balance of power in the IWC had undergone a dramatic shift, and when the IWC once again voted on the moratorium there were eight yes votes (America, Britain, Argentina, Mexico, Panama, Australia, Canada, and France), five no votes (Japan, Russia, Norway, Iceland, and South Africa), and one abstention (Denmark). The moratorium did not pass because a three-quarters majority was needed for passing an amendment, but it was clear to the whaling countries that more countries were supporting the non-whaling movement. In 1974, Brazil joined the IWC as a whaling nation, followed by New Zealand as an anti-whaling nation in 1976. Then, in 1977, the Netherlands joined the IWC as an

[98] Mulvaney, 116.

anti-whaling nation. By 1979 there were twenty-three nations in the IWC; the six new countries were Chile, Peru, Spain, Korea, Seychelles, and Sweden. All of the new countries were whaling nations, except Seychelles and Sweden. Even with the four new whaling nations in the IWC, the IWC passed a ban on pelagic whaling of all species except minke, as well as a ban on all whaling in the Indian Ocean.

In 1979, Japan got nervous about the possibility of the IWC being able to pass a moratorium on whaling, leading it to initiate behind the scenes negotiations to ensure the future of commercial whaling. Some of these dealings involved Japan offering many of the smaller countries in the IWC economic development packages that were hard to turn down. Japan's dealings led Panama to withdraw from the IWC in 1980. Also, in 1980 Oman and Switzerland joined the IWC. The following year, 1981, Jamaica, Saint Lucia, Dominica, Costa Rica, Uruguay, China, India, Saint Vincent, and the Philippians joined, and Canada withdrew from the IWC. Canada left the IWC for reasons that have never been fully revealed, although, the country claimed to no longer be involved in whaling.[99] In 1982, Egypt, Monaco, Germany, Kenya, Senegal, Belize, and Antigua joined the IWC. With the change in nation participation the IWC now had more whaling nations than non-whaling nations in place.

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[99] Ellis, Men and Whales, 429.

With more non-whaling nations in place, in 1982, the IWC created an indefinite moratorium on worldwide commercial whaling that took effect in the 1985-1986 season. In 1983, Finland and Mauritius joined the IWC, followed by Ireland and the Solomon Islands in 1985. The ban on whaling went into effect in 1985. For the first time, the IWC set all whaling quotas at zero, but Japan, Russia, and Norway (the strongest of the whaling nations in the IWC) filed timely objections and continued to whale. Iceland and Korea continued to hunt whales using the "scientific research" loophole in the IWC guidelines. However, much of the whale meat that was obtained through scientific research mysteriously shows up in fish markets.

In 1992, Iceland withdrew from the IWC so it could resume commercial whaling, but rejoined in 2002. Japan now hunts whales under for "scientific research", and has threatened to withdraw from the IWC in 2006 if the moratorium is not lifted.[100] Norway is once again involved in commercial whaling, and Iceland now whales for scientific purposes. The number of member nations in the IWC remains important to the future of international whaling. Only nations that are members of the IWC need to abide by the regulations that the IWC creates. So, any nation that is not a member of the IWC can kill as many whales as it would like to. A member nation of the IWC can also hunt whales as long as it filed an objection to the moratorium in a timely manner. These

[100] Andrew Revkin, "Save the Whales! Then What?," New York Times, 17 August 2004, F1.

loopholes in the regulations give the IWC no enforcement power over countries that want to continue to whale.

Since 1993, the IWC has been interested in whalewatching. First, the IWC researched whalewatching by asking member nations to collect information about whalewatching in their countries. This information was turned in at the 1994 IWC meeting. At the 1994 meeting a working group was established to review the information on whalewatching that was collected. After the 1994 meeting IWC's Scientific Committee analyzed whalewatching guidelines from all over the world, and agreed upon general principles for whalewatching, which the IWC supports as beneficial guidelines for the protection of whales. These guidelines do not need to be followed by any nation; however, they are made available to any interested party (See Appendix C- International Whaling Commission's General Principles for Whalewatching). [101]

The IWC's interest in whalewatching and its general principles could become more important in the coming years. In 2003, a big change occurred in the IWC when by a vote of twenty-five to twenty, with one abstention, members passed a resolution to form a Conservation Committee. The new committee is responsible for creating and recommending a conservation agenda to the IWC.[102] The creation of the Conservation Committee signals another major shift in the

[101] Whalewatching, [online resource] accessed 9 February 2005, available from www.iwcoffice.org/conservation/whalewatching.htm.
[102] 2003 Meeting, [online resource] accessed 9 February 2005, available from www.iwcoffice.org/meetings/meeting2003.htm.

mentality of the IWC members. This shift shows that some members are serious about the long-term health of the world's whale stocks.

Name of Country	Adherence Date	Name of Country	Adherence Date
Antigua & Barbuda	21/07/82	Mauritania	23/12/03
Argentina	18/05/60	Mexico	30/06/49
Australia	10/11/48	Monaco	15/03/82
Austria	20/05/94	Mongolia	16/05/02
Belgium	15/07/04	Morocco	12/02/01
Belize	17/06/03	Netherlands	14/06/77
Benin	26/04/02	New Zealand	15/06/76
Brazil	04/01/74	Nicaragua	05/06/03
Chile	06/07/79	Norway	23/09/60
China	24/09/80	Oman	15/07/80
Costa Rica	24/07/81	Republic of Palau	08/05/02
Côte d'Ivoire	08/07/04	Panama	12/06/01
Czech Republic	26/01/05	Peru	18/06/79
Denmark	23/05/50	Portugal	14/05/02
Dominica	18/06/92	Russian Federation	10/11/48
Finland	23/02/83	San Marino	16/04/02
France	03/12/48	St Kitts and Nevis	24/06/92
Gabon	08/05/02	St Lucia	29/06/81
Germany	02/07/82	St Vincent & The Grenadines	22/07/81
Grenada	07/04/93	Senegal	15/07/82
Guinea	21/06/00	Slovak Republic	22/03/05
Hungary	01/05/04	Solomon Island	10/05/93
Iceland	10/10/02	South Africa	10/11/48
India	09/03/81	Spain	06/07/79
Ireland	02/01/85	Suriname	15/07/04
Italy	06/02/98	Sweden	15/06/79
Japan	21/04/51	Switzerland	29/05/80
Kenya	02/12/81	Tuvalu	30/06/04
Kiribati	28/12/04	United Kingdom	10/11/48
Republic of Korea	29/12/78	USA	10/11/48
Mali	17/08/04		

Table 2- List of Current IWC Member Nations and Adherence Dates[103]

[103] International Whaling Commission, "IWC Member and Commissioners" [online resource], accessed on 19 April 2005, available from http://www.iwcoffices.org/commisson/members.htm.

United States Laws

Marine Mammal Protection Act[104]

The Marine Mammal Protection Act of 1972 provides protection for all marine mammals, not just those on the endangered and threatened species list. It prohibits the taking, importation, transportation, possession, and purchase or sale of marine mammals except as afforded in the Act. This Act was created because many marine mammal stocks were in danger of extinction or depletion due to human activities. The members of Congress who wrote and voted for the MMPA believed that marine mammal stocks should not be "permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part," and that "marine mammals have proven themselves to be resources of great international significance, esthetic, recreational, as well as economic."[105] The Act also includes statements about the need to protect the habitats of marine mammals from the detrimental effects of human activity.

In the MMPA *take* "means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal."[106] *Harass*, for all people in United States' waters, except the military in the case of a military readiness activity or government scientists that are engaged in activities defined in section

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[104] Marine Mammal Protection Act of 1972, 16 U.S.C. Sections 1361-1421 (h) (1994 &Supp. V 1999).
[105] 16 U.S.C. Section 1361
[106] 16 U.S.C. Section 1362

104 (c)(3), is defined as "any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."[107] The types of harassment are divided into two categories: "Level A harassment" is any activity that has the potential to disturb a marine mammal in the wild; "Level B harassment" includes any activity, which alters a marine mammal's natural behavior.[108]

When the MMPA was implemented in the United States Code of Federal Regulations (50 CFR Part 216) the definition for the term *take* was altered to be more specific. The revised definition of *take* is

> to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal. This includes, without limitation, any of the following: The collection of dead animals, or parts thereof; the restraint or detention of a marine mammal; the negligent or intentional operation of an aircraft or vessel, or doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal; and feeding or attempting to feed a marine mammal in the wild.[109]

A violation of the MMPA could be subject to a civil penalty of up to $10,000 per violation, or criminal prosecution that could result in a fine of up to $100,000, or a

[107] 16 U.S.C. Section 1362 (18) (A) (i) (ii)
[108] 16 U.S.C. Section 1362 (18) (B) (C)
[109] 50 CFR Section 216.3

prison sentence of up to one year, or both. The National Marine Fisheries Service (NMFS) is the enforcement agency for the MMPA, and the Department of Commerce is allowed to use their personnel for additional enforcement.[110] Some of the activities that are exempt from the *takings* regulation of the MMPA with a permit or authorization from the National Oceanic and Atmospheric Administration (NOAA) or the NMFS are scientific research, photography, and incidental takes during commercial fisheries and non-fishery activities.

Endangered Species Act[111]

The Endangered Species Act (ESA) of 1973 provides for the protection of endangered and threatened species and their ecosystems because "these species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."[112] The regulatory power of the ESA is the direct responsibility of the Department of the Interior and the Department of Commerce, but it is expected that all departments and agencies conserve endangered and threatened species. The Act prohibits the importation, exportation, possession, or *taking* of any endangered or threatened species.[113] There are exceptions and exemptions to all of the rules created through permitting.[114] The act defines *take* as "to harass, harm, pursue, hunt, shoot,

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[110] 50 CFR Section 216.8
[111] Endangered Species Act of 1973, 16 U.S.C. Section 1531-1544 (1994 & Supp 1999).
[112] 16 U.S.C. Section 1531 (a)(3)
[113] 16 U.S.C. Section 1538 (1) (A) (B) (C) (D) (E) (F) (G)
[114] 16 U.S.C. Section 1532 (g)(2) and 1539

wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[115]

The language by which the term *take* was defined changed in United States Code of Federal Regulations (50 CFR), which implemented the Endangered Species Act. In 50 CFR, *take* is reworded to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect."[116] The term *harm*, which appears in the definition of take, is also defined in 50 CFR as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modifications or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering."[117]

While both *take* and *harm* are defined, the descriptions are not specific, allowing for a broad interpretation of the law. Therefore, with respect to whalewatching, a commercial or recreational vessel could *take* a whale by harassing, harming, wounding or killing it. A whalewatching vessel has the potential to *harass* a whale by getting too close to it or getting in its path, causing the whale to need to change its course. Whalewatching vessels can *harm* whales by creating an area where vessel traffic is so dense that whales avoid the area.

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[115] 16 U.S.C. Section 1532 (19)
[116] Endangered Species Act of 1973, United States Code of Federal Regulation, 50 CFR Section 222.102 (1973).
[117] 50 CFR Section 222.102

The number one cause of a whalewatching vessel wounding or killing whales is by accidentally striking them. When a whalewatching vessel strikes a whale it can cause internal injuries by shear force of the two bodies colliding. A whalewatching vessel can also cause external injuries if the whale comes into contact with the boat's propeller. Sometimes the injury to a whale caused by a vessel strike is so severe the whale dies.

If a person knowingly *takes* an endangered species s/he is subject to a civil penalty of up to $10,000, and if a person accidentally *takes* an endangered specie then s/he is subject to a civil penalty of up to $500. Criminal acts are liable to be subject to fines of up to $20,000, a year in prison, or both.

Title III of the Marine Protection, Research, and Sanctuaries Act[118]

Title III of the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972, also known as the National Marine Sanctuaries Act (NMSA), established the National Marine Sanctuaries System in the United States. This Act was created to protect and manage marine areas based on their "conservation, recreational, ecological, historical, cultural, archaeological, scientific, educational, or esthetic qualities." Title III aims to "improve the conservation, understanding, management, and wise and sustainable use of marine resources; enhance public awareness, understanding, and appreciation of the marine environment; and

[118] National Marine Sanctuaries Act16 U.S.C., Chapter 32, Section 1431-1434 (1972).

maintain for future generations the habitat, and ecological services, of the natural assemblage of living resources that inhabit there areas."[119]

It is the responsibility of the United States' government to identify and manage these areas as the National Marine Sanctuary System. There are two methods by which an area can become a National Marine Sanctuary. The first is administratively through the National Marine Sanctuaries system, and the second way is legislatively through Congress. Once an area is named a National Marine Sanctuary it is supposed to "enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System."[120]

National Marine Sanctuaries are also supposed to organize scientific research and monitoring of the marine resources in the designated areas, and facilitate public and private uses of the marine sanctuaries. The management and protection of the sanctuary areas should be organized to meet the interest and needs of the users. The sanctuaries are responsible for creating the methods that are used to conserve and manage the area. National Marine Sanctuaries are expected to collaborate with the international programs that support the conservation of marine resources.[121] One international program that Hawaiian

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[119] 16 U.S.C. Section 1431
[120] 16 U.S.C. Section 1431
[121] 16 U.S.C. Sections 1431-1434, 301 (b) (1) (2) (3) (4) (5) (6) (7) (8) (9)

Islands is currently involved with is a monitoring project of the number of humpback whales in the Pacific Ocean.

Stellwagen and Hawaiian Islands were both designated, at least in part, because of the areas' importance to whales. It is the job of these to sanctuaries to provide adequate protection to whales, and to make sure that whalewatching vessels are not interfering with their whale populations.

The Hawaiian Islands Humpback Whale National Marine Sanctuary Act[122]

The Hawaiian Islands Humpback Whale National Marine Sanctuary Act provides the management plan that is specific to the Hawaiian Islands. The Sanctuary was created to protect the humpback whale and their habitat for several reasons. First, the world's largest stock of Northern Pacific humpback whales breed and calve in the waters around the Hawaiian Islands.[123] It was discovered that these areas, which are important to the humpbacks, were harmed by human disturbances, and that the regulation and management provided by state and federal agencies prior to the area's designation as a National Marine Sanctuary was inadequate.[124] Hawaiian Islands was also created to provide public education and support scientific research, which Congress believes will lead to the conservation and survival of humpback whales.[125] Therefore, a main purpose of

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[122] Subtitle C of Public Law Section 102-587, as amended by Public Law 104-283
[123] Oceans Act of 1992, H.R. Section 5617, subtitle C Hawaiian Islands Humpback Whale National Marine Sanctuary, Sections 2301-2307.
[124] Section 2302 (7) (8)
[125] Section 2302 (13) (14)

the sanctuary is to educate the public about the relationship between the humpback whale and the Hawaiian marine environment.[126]

The Stellwagen Bank National Marine Sanctuary Act[127]

Congress designated Stellwagen Bank a National Marine Sanctuary for a number of reasons, including that it's a feeding and nursing ground for five endangered whales: the humpback, fin, blue, sei, and Northern Atlantic right whales.[128] The number one goal of Stellwagen Bank National Marine Sanctuary (Stellwagen) is to "protect the marine environment, resources, and qualities of the sanctuary." In order to protect the whales in the sanctuary, no *takings* are allowed.[129] Sanctuary visitors are not allowed to feed or injure the marine mammals within the sanctuary limits.[130] Education is a main priority in the sanctuary's management plan. Stellwagen aims to provide information on sanctuary regulations to the public, promote compatible uses of the Sanctuary though education, encourage the public to use the Sanctuary, and minimize potential user conflicts.[131]

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[126] Section 2304 (2)
[127] 58 F.R. Section 53865, 15 C.F.R. Part 940
[128] 15 C.F.R. Part 940 Article III
[129] 15 C.F.R. Part 940 III
[130] 15 C.F.R. Part 940 Article IV Section 1 (f)
[131] 15 C.F.R. Part 940 III

Whalewatching Guidelines for Hawaiian Islands Humpback Whale National Marine Sanctuary[132]

The ESA contains special prohibitions for endangered marine animals. The four prohibitions included in the ESA are intended to regulate approaching humpback whales in Hawai‘i. The ESA makes it illegal to approach within one hundred yards (ninety meters) of a humpback whale; to

> cause a vessel or other object to approach within 100 yards of a humpback whale; or disrupt the normal behavior or prior activity of a whale by any other act or omission. A disruption of normal behavior may be manifested by, among other actions on the part of the whale, a rapid change in direction or speed; escape tactics such as prolonged diving underwater course changes, underwater exhalation or evasive swimming patterns; interruptions of breeding, nursing, or resting activities; attempts by a whale to shield a calf from a vessel or human observer by tail swishing or by other protective movement; or the abandonment of a previously frequented area.[133]

These regulations are all federally enforceable. The only exceptions to these regulations are by a permit authorized by NOAA Fisheries.

In addition to the ESA regulations, the sanctuary created voluntary guidelines to help vessel operators make better decisions around whales. The guidelines created by Hawaiian Islands Humpback Whale National Marine Sanctuary are not enforceable. They are just suggestions of actions that boaters

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[132] Hawai‘i’s Marine Protected Species A Handbook for Ocean Users About Hawai‘i’s Whales, Dolphins, Sea Turtles, and Monk Seals and the Laws that Protect Them The Laws and Regulations for Federally Protected Marine Resources, (NOAA and the State of Hawai‘i, 2004-2005), 31-32.
[133] 50 CFR 224.103 (a) (1) (2) (3) (4)

should comply with in order to provide greater protection for whales and to prevent *harassment* (See Appendix D- Whalewatching Guidelines for Hawaiian Islands Humpback Whale National Marine Sanctuary).

Whalewatching Guidelines for Stellwagen Bank National Marine Sanctuary[134]

The guidelines for whalewatching on Stellwagen Bank are much more specific than the guidelines for Hawaiian Islands; however, they are all voluntary guidelines, except for the regulations on North Atlantic right whale viewing. Since the right whale population recovery is occurring at such a slow pace, there are state and federal enforceable regulations providing North Atlantic right whales more legal protection. It is illegal for any vessel that is not engaged in commercial fishing or approved by NMFS to examine a whale for entanglement to approach within 500 yards of a right whales (450 meters). If a vessel is within 500 yards of a right whale they are to slowly and cautiously leave the buffer zone.

Sanctuary mangers revised the guidelines in 1998-1999 to better protect whales against vessel strikes. Therefore, managers created guidelines to keep whales in the vicinity of whalewatching vessels safe. The writers of the guidelines also intended to keep whalewatchers from *harassing* whales as defined in the MMPA (See Appendix E- NOAA- National Marine Fisheries Service and

[134] "NOAA-National Marine Fisheries Service and National Ocean Service Whalewatching Guidelines for the Northeast Region Including Stellwagen Bank National Marine Sanctuary" [online resource], accessed on 27 September 2004, available from www.nmfs.noaa.gov/pr/readingrm/MMView/nr051999.pdf.

National Ocean Service Whalewatching Guidelines for the Northeast Region Including Stellwagen Bank National Marine Sanctuary).

This chapter offered a broad overview of the policies that relate to whalewatching. The reader should bear in mind that some of the policies are enforceable while others are merely suggested. Also, this overview should provide the reader with a sense of the enforcement options that officials can use to regulate whalewatching. The next two chapters present the information on how the individuals interviewed about Stellwagen and Hawaiian Islands think the sanctuaries are doing in their quests to better protect whales.

STELLWAGEN BANK NATIONAL MARINE SANCTUARY

In 1854, Captain Henry Stellwagen recorded in his papers that he had made an "important discovery in the location of a fifteen fathom bank lying in a line between Cape Cod and Cape Ann."[135] Captain Stellwagen discovered a 638-square-nautical-mile area of the sea teaming with sea life and marine resources. In 1982, a group at the Center for Marine Studies on Cape Cod wrote a proposal to NOAA to nominate this area, which is now known as Stellwagen Bank, for consideration to be a National Marine Sanctuary. NOAA considered the proposal, and in 1983, added Stellwagen Bank to the list of proposed sites. NOAA nominated Stellwagen to Congress to be a National Marine Sanctuary in 1989. On November 4, 1992, President George H. W. Bush named Stellwagen Bank the eleventh National Marine Sanctuary in the United States.

Stellwagen Bank is located twenty-six miles east of Boston, Massachusetts, six miles north of Provincetown, and seven miles southeast of Gloucester, in an area that is, and has historically been, used for many purposes.[136] In the nineteenth century Provincetown had the second largest whaling fleet in the United States. From 1750-1850, Boston, Massachusetts, was the third busiest

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[135] Ward, 20.
[136] Ibid., 22.

harbor in the world. Gloucester historically had and continues to have one of the largest fishing fleets in the state.

Today, instead of whaling vessels leaving from Provincetown to hunt whales, whalewatching vessels take visitors to Stellwagen Bank to enjoy the beauty of the whales. Boston remains a busy port city, and the shipping channel that the vessel traffic going into and out of Boston must use runs through Stellwagen Bank. The sanctuary tries to manage the commercial, recreational, scientific, and educational actives that occur within sanctuary boarders because of all of the modern uses and modern vessel traffic in Stellwagen Bank.[137]

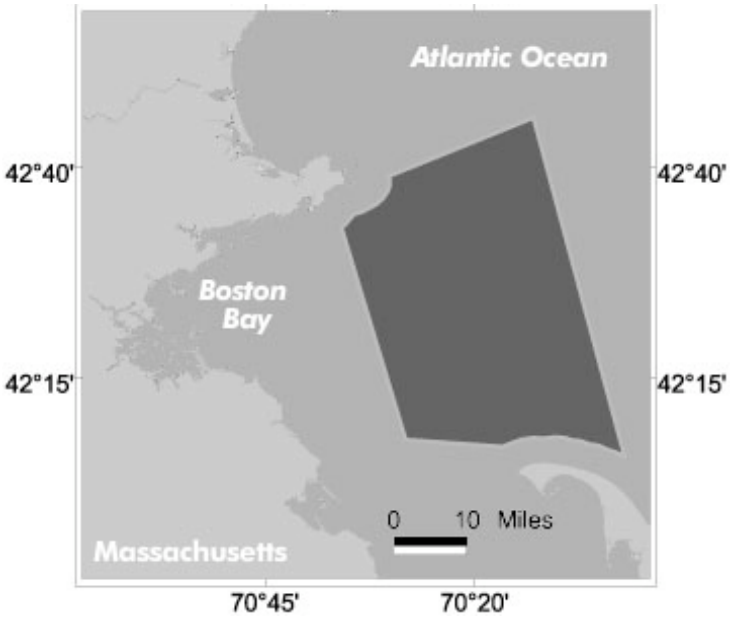

Figure 4- Chart of Stellwagen Bank[138]

[137] Ibid., 9.
[138] "Stellwagen Bank National Marine Sanctuary" [online resource], accessed 2 April 2005, available from http://www.sanctuaries.nos.noaa.gov/oms/omsstellwagen/omsstellwagen.html.

Whalewatching is one of the primary reasons that Congress considered Stellwagen for National Marine Sanctuary status.[139] Whalewatching in Stellwagen Bank began seven years before the area was recommended for consideration to NOAA. On April 15, 1975, Al Avellar began taking passengers out to Stellwagen Bank to view whales. For his early trips he used his fishing boat, Dolphin. He named his whalewatching company Dolphin Fleet. Avellar recognized the importance of educating his passengers about whales, so beginning with his very first whalewatching trip, Avellar brought a naturalist aboard his vessel.[140] Between 1975 and 1992, when Stellwagen became a National Marine Sanctuary, over ten million people gained a sense of the ecological significance of the Stellwagen Bank area by going on whalewatching trips. Dolphin Fleet is still in existence today, but they now operate three vessels for the sole purpose of whalewatching.

The rest of the whalewatching industry has also grown since 1975, and E Magazine has named Stellwagen Bank one of the top ten whalewatching locations in the world.[141] Today there are more than fifteen companies operating more than twenty vessels from nine ports in the Cape Cod, South Shore, Boston, and North Shore areas. Tickets for whalewatching trips have been steadily increasing in price. In 1994, the average price of a ticket was fifteen dollars, but by 1996 it had

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[139] Hoyt, 16.
[140] Ward, 197.
[141] Elain Roberts, "The Top 10 Whale-Watching Spots," E Magazine: The Environmental Magazine, May/June 1997, 28.

increased to twenty-four dollars. Even as the ticket price increases, so too does the interest in whalewatching.[142] Today, up to two million people per season go whalewatching on Stellwagen Bank.[143]

Lisa Fox, director of the Center for Oceanic Research and Education, has been working on whalewatching vessels since 1988. She has seen the number of passengers dramatically decrease on the vessel that she works on, but this is not because there are fewer people going whalewatching. It is because there are more whalewatching vessels in the sanctuary area. Over the last few seasons, Yankee Whalewatching, the company on whose vessels Lisa is a naturalist, has seen about the same numbers of passengers from season to season.[144]

The revenue brought into the New England economy through whalewatching is estimated to be at least twenty-one million dollars per year, making it one of New England's most important recreational activities.[145] Scientists who also serve as naturalists to educate passengers on commercial whalewatching vessels in Stellwagen Bank use the whalewatching vessels as research platforms. The scientific community benefits from this arrangement because they save at least $875,000 per year in research costs because they do not

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[142] Hoyt, 16.
[143] Ward, 194
[144] Lisa Fox, Director of the Center for Oceanic Research and Education, Provincetown, MA, personal correspondence by e-mail.
[145] Porter Hoagland and A.E. Meeks, "The Demands for Whalewatching at Stellwagen Bank National Marine Sanctuary," The Economic Contributions of Whale Watching to Regional Economies: Perspectives From Two National Marine Sanctuaries (Silver Springs, MD: United States Department of Commerce, National Oceanic and Atmospheric Administration, Marine Sanctuaries Division, 2000), 56.

need to incur the expenses associated with owning and operating research vessels.[146]

In addition to the commercial whalewatching vessels that use sanctuary waters, there is also an unknown number of recreational whalewatching vessels that use the area each day.[147] Due to the volume of commercial and recreational vessel traffic, one of the largest problems that managers of Stellwagen Bank face today is how to keep sanctuary users from harming the seventeen species of cetaceans that migrate through the sanctuary's boarders.[148] Five of the species seen in Stellwagen Bank are fin whales, North Atlantic right whales, sei whales, blue whales, and humpback whales; all five of these species are on the endangered species list and are protected by the Endangered Species Act.[149]

Whalewatching has both positive and negative impacts on the whale population in Stellwagen Bank. Whalewatching has led to better protection of habitat, since the cultural significance of whalewatching on the greater sanctuary area helped in the National Marine Sanctuary designation process.[150] Whalewatching has also allowed many thousands of people to become more educated about the whales and ecology of Stellwagen Bank. The increased

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[146] Hoyt, 16.
[147] Marine Mammal Vessel Strike Working Group, *Gerry E. Studd's* Stellwagen Bank National Marine Sanctuary Mammal Vessel Strike Action Plan, (Stellwagen Bank National Marine Sanctuary, 2004), 4 [herein after MMVS-Plan].
[148] Ward, 201.
[149] Carrie B. Bridgewater, "The next Step in North Atlantic Right Whale Protection: A Closer Look at Whalewatching Guidelines for the North East," 6 Ocean and Coastal Law Journal 347 (2001): 1 [journal online], accessed 27 September 2004, available from http://web.lexis-nexis.com.
[150] Hoagland.

education has made individuals who have gone whalewatching more aware of the environmental issues that impact cetaceans, and whalewatching has made whalewatchers more interested in ensuring the survival of whales. Many individuals who have gone commercial whalewatching donate funds to help research and conservation efforts to continue.[151]

The negative impacts of whalewatching are not as well known as the positive impacts. While much research is focused on whales in Stellwagen there have yet to be any conclusive results on what the negative impacts of whalewatching on whales are.[152] One potential drawback of whalewatching is that it could harm whales' ability to hear well. Whalewatching could also interrupt the natural behavior of whales. If whalewatching interrupts the natural behavior of whales several behavioral changes could occur. A whale's respiration, resting, traveling speed, distribution, and/or vocalization could all change due to interruptions from whalewatching vessels.[153]

Whalewatching could also cause whales to become habituated to vessels. Habituation is a dangerous response to behavioral disturbance caused by whalewatching because it puts whales at a greater risk of being struck by vessels, since they would hear the vessel approaching but would not react to the vessel. Abandonment of habitat by the whales would mean that Stellwagen Bank

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[151] Joanne Jorzobski, Whale Watch Education Director and Marine Education Coordinator, Center for Coastal Studies, Provincetown, MA, e-mail correspondence, 1 February 2005.
[152] Mason Weinrich, Executive Director and Chief Scientist, The Whale Center of New England, Gloucester, MA, phone interview, 23 February 2005.
[153] Carole Carlson, Senior Marine Scientist Advisor, International Fund for Animal Welfare, Yarmouth Port, MA, e-mail interview, 27 January 2005.

National Marine Sanctuary had failed at its purpose of safeguarding the feeding grounds.[154] The potential outcomes of disturbance to whales make minimizing disturbance an important issue for both the sanctuary and the whalewatching industry. Basically, from the scientific information that is currently known about the effects of whalewatching on whales it is easy to assume whalewatching does or does not have negative impacts on whales, but it is difficult to determine the actual impacts.[155]

The most obvious negative impact that a whalewatching vessel can have on a whale is killing or injuring the whale. Injury to or death of a whale is a common consequence of vessel strikes. When a vessel strike occurs it is clear that a whalewatching vessel (commercial or recreational) is not in compliance with the MMPA or the ESA, and it is debatable if a boat was in fact trying to follow the recommended whalewatching guidelines. Since 1976, seventeen vessels have stuck whales within the sanctuary boarders, and an additional twenty vessels have struck whales in the coastal waters around Stellwagen (See Appendix F- Greater Sanctuary Strike Report). These thirty-seven strikes only represent the incidents that were reported, an unknown number of vessel strikes have occurred that were never properly reported. Nine of the reported strikes that took place inside sanctuary boundaries involved whalewatching vessels, and vessels that were actively engaged in whalewatching caused seven of the nine

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[154] Ibid.
[155] Mark Wiley, Marine Education Specialist, New Hampshire Sea Grant, Durham, NH, phone interview, 23 February 2005.

vessel strikes. Also, one of the seven vessels engaged in whalewatching was a recreational whalewatcher; the other six vessels were commercial. Commercial whalewatching vessels caused two additional vessel strikes in waters surrounding the sanctuary. One of these vessels was engaged in whalewatching while the other was transiting.[156]

When looking at these numbers it is important to keep in mind that commercial whalewatching vessels are more likely to report vessel strikes than many other types of ships.[157] Commercial whalewatching vessels report all strikes that they are involved in because there is no way to hide the incident with the number of passengers on board. One person interviewed believes that if all vessel strikes were reported, whalewatching vessels would be responsible for a lower percentage of the total number of vessel strikes than they currently are.[158] Also, it is important to note the difference between a whalewatching vessel that is actually engaged in whalewatching, and a non-engaged vessel that is transiting to or from the whalewatching grounds.[159] Therefore, a non-engaged whalewatching vessel is very much like any other vessel in service that is transiting from one point to another. While vessels are transiting, they normally travel at a faster speed than when they are actively looking for whales.

Since 1976, one of the whales struck by a vessel engaged in whalewatching in Stellwagen died. Five of the whales that were hit in Stellwagen

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[156] Regina Asmutis-Silvia, Biologist, International Wildlife Coalition, East Falmouth, MA, personal communication via e-mail, 26 January 2005.
[157] Asmutis-Silvia, telephone communication.

sustained injuries, and it is unknown what, if any, damage the other two whales struck within the sanctuary sustained. The one whale struck by a non-engaged whalewatching vessel outside of sanctuary waters was killed. The vessel that was engaged in whalewatching when it struck the whale in the greater sanctuary area had an unknown impact upon the whale. Since eleven of the thirty-seven reported strikes involved whalewatching vessels, and unknown vessel types caused eighteen strikes, many individuals involved with Stellwagen are wondering how the matter can be best addressed.

Changes were made to the recommended whalewatching guidelines after the 1998 season because commercial whalewatching vessels caused three vessel strikes.[160] The first incident involved a vessel striking and injuring a humpback whale; the second incident happened when a vessel collided with a fin whale that received unknown injuries; and the third incident involved a whalewatching vessel hitting and killing a minke whale.[161] These three incidents caused the Stellwagen Bank officials to take a long hard look at what was going on with whalewatching vessels, and what can be done in the future to prevent any further accidents involving whalewatching vessels and whales.

One problem that the sanctuary's investigation revealed was with the speeds at which vessels were traveling. In 1997, the average speed of a whalewatch boat was 13.6 knots. By 1998, the average speed of a whalewatching

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[158] Ibid.
[159] Asmutis-Silvia, personal correspondence.
[160] Hoagland.

vessel 18.9 knots. The maximum speeds at which whalewatching vessels traveled at increased by 12 knots between the 1997 season and the 1998 season.[162] This information prompted new suggested guidelines regarding speeds, which were incorporated in to the National Marine Fisheries Service Whalewatching Guidelines for the Northeast Region Including the Stellwagen Bank Marine Sanctuary. The new guidelines are supposed to protect the unseen whale, the whale that is most likely to get struck or accidentally harassed.[163]

The revised whalewatching guidelines were meant to protect whales from both ship strikes and harassment, but since they are only voluntary guidelines to follow and not enforceable regulations, it is hard to judge how they are working. Wiley and Moller conducted a study in 2003 to examine the compliance rate of commercial whalewatching vessels. The information Wiley and Moller collected revealed that there is a very low compliance rate among commercial whalewatching vessels. This information was presented to representatives from the whalewatching industry. The representatives had very little objection to the findings of the Wiley and Moller study.[164]

Biologist Regina Asmutis-Silvia observes that the new regulations are "broken with some consistency."[165] Asmutis-Silvia recognizes that there are many possible explanations for the low compliance rates. She is quick to point

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[161] MMVS-Plan, 16.
[162] MMVS-Plan, 2-3.
[163] Asmutis-Silvia, telephone communication.
[164] Susan Farady, Ecosystems Protection Project Manager, Ocean Conservancy, phone interview, 23 March 2005.
[165] Asmutis-Silvia, telephone communication.

out that in the last few years there have been fewer whales in the sanctuary waters. So, when a commercial whalewatching vessel sights a whale, other vessels will also be eager to see that whale resulting in more vessels in close contact with the whale than the guidelines suggest. Also, because vessels have to travel greater distances to see fewer whales, the whalewatching boats might travel at faster speeds to make up lost time. Another explanation for the low rate of commercial compliance Asmutis-Silvia offered was that when the current guidelines were written, many humpback whales were transiting through Stellwagen, and now there are few humpback whales and more fin whales. Due to the change in prevalent whale species in Stellwagen Bank and the lower number of whales, whalewatching vessels may be less concerned about the occurrence of ship strikes.[166]

Mason Weinrich, the Director of the Whale Center of New England, spends a lot of time aboard whalewatching vessels as a naturalist. From what he views on the water, he knows that commercial vessels do not always follow the voluntary guidelines, and a few vessels will break some of the guidelines more often than others. Most vessels avoid head on approaches of whales all of the time, while vessels will only sometimes comply with the guideline limiting the number of vessels in the close approach zone. Weinrich knows that the guideline stating that whalewatching vessels should post a dedicated watch within two

[166] Ibid.

miles of a whale is often ignored by commercial whalewatching vessels.[167] Susan Farady of the Ocean Conservancy has been on a whalewatch with Mason Weinrich as the naturalist. She remembers Weinrich making statements like "we are just going to hang back a little" while in the vicinity of a whale to explain to the passengers why the vessel was not going closer to the whale. Farady does not recall if Weinrich ever told the passengers that there are whalewatching guidelines that suggest safe viewing distances.[168]

One enforceable regulation involving whales in the Stellwagen Bank area is part of the ESA. It is a distance regulation requiring all vessels to stay more than 500 feet away from a North Atlantic right whale. This regulation is enforceable because the North Atlantic right whale is considered a critically endangered species. It is believed that there are between 200 to 300 North Atlantic right whales left in the world.[169] The North Atlantic right whale has been a protected species on the IWC list since 1935, yet between 1980 and today their population number has dropped by more than 700 individuals.[170]

The causes of this drastic drop in the North Atlantic right whale population are not entirely known, although it is believed that the causes are anthropogenic. North Atlantic right whales are prone to both vessel strikes and

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[167] Weinrich.
[168] Farady.
[169] Tora Johnson presentation on Entanglements, 22 March 2005, at the G.W. Blunt White library.
[170] Ellis, The Empty Ocean, 240

entanglements in fishing gear.[171] Because of the low population number the ESA sets a zero take limit on North Atlantic right whales, yet there are reports of at least one per year being killed.[172] Commercial whalewatching operators are well aware of the plight of the North Atlantic right whale, and therefore, are always in compliance with the ESA regulations.[173] As a testament to commercial whalewatching vessels' commitment to ensuring right whale safety, a vessel engaged in whalewatching has never reported striking a North Atlantic right whale.[174]

Most commercial whalewatching companies want to be responsible around whales because it is the whales that keep the companies in business. They have a vested interest in the well being of whales, and therefore, whalewatching captains feel that they always try to make sound judgment calls, even if they are not following the guidelines. It is also true that sometimes a captain with the best intentions will not comply with the guidelines because the operator can only control the vessel; s/he cannot control the actions of the whale.[175] While whalewatching companies want to act responsibly they also want to stay in business, so with the current non-enforceable guidelines competing companies are trying to offer passengers the closest look at whales. Operators that are trying to follow the guidelines risk losing customers to companies who ignore the

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[171] Johnson.
[172] Ibid.
[173] Captain Chip Reilly, Director of Safety at Boston Harbor Cruises, Boston, MA, personal communication, 23 February 2005.
[174] Asmutis-Silvia, personal communication.
[175] Wiley.

guidelines to get passengers a closer look at whales.[176] Also, commercial vessels are not the only vessels going whalewatching, there are also recreational whalewatchers.

Captain Chip Reilly, Director of Safety at Boston Harbor Cruises, says that recreational boaters are the biggest offenders of the guidelines. Every day during the summer months, commercial whalewatching vessels must contend with the pleasure crafts that follow them out to the whalewatching grounds.[177] Commercial whalewatching vessels are large and hard to miss, so recreational boaters will take advantage of the commercial vessels' ability to find whales.[178] The operators of these pleasure crafts do not know or do not care about the whalewatching regulations.[179] They zip around whales going way too fast, and recreational boaters are prone to committing irresponsible actions such as circling whales or driving directly over bubble nets that feeding humpback whales create to drive fish to the surface.[180] When there are recreational whalewatchers around commercial whalewatchers have very little incentive to comply with the recommended guidelines.[181]

Sanctuary Advisory Committee members have mixed feelings on how to increase compliance with the guidelines and provide better protection to whales. The whalewatching industry does not want to see enforceable regulations because

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[176] Farady.
[177] Reilly.
[178] Mary Loebig, naturalist, South Dennis, MA, e-mail interview, 23 October 2004.
[179] Wiley.
[180] Loebig.
[181] Carlson.

they feel they depend upon the well-being of the whales and do not want to harm them. The whalewatching industry also believes that the voluntary guidelines are "sufficient to protect whales from strikes."[182] But, one must remember that vessel strikes are not the only impacts whalewatching has on whales. Cetaceans are also subjected to *harassment* from whalewatching vessels, and regulations should be in place that protect whales from *harassment*. Weinrich believes that enforceable regulations would improve the level of protection that the sanctuary offers whales.[183] He also thinks that the level of protection that the regulations provide to whales depend upon what the regulations are. Weinrich believes that the current guidelines if turned into enforceable regulations would provide much better protection for whales in the sanctuary.[184]

Susan Farady agrees that regulations would bring about better whale conservation because commercial and recreational whalewatchers are much more inclined to behave within a reasonable boundary if they are told that the rules are enforceable. It is also human nature to not always follow rules that are merely suggested. She hopes that if enforceable regulations were enacted they would level the playing field for all commercial whalewatching companies because all companies would be aware of the regulations and be required by law to abide by the same rules. Therefore, all companies would offer trips limited to the same

[182] MMVS-Plan, 15.
[183] Weinrich.
[184] Ibid.

distance from a whale. Ms. Farady points out that the sanctuary is going to have to be creative in the methods they use for enforcement.[185]

Many SAC members including Captain Reilly and Regina Asmutis-Silvia do not think that the current guidelines could be enforced, so if they were made into regulations they would fail to better protect the whales. However, they both think that creating enforceable rules that all sanctuary users could agree to would better protect whales.[186] Captain Reilly believes that it would take federal regulations to create enforceable rules for vessels to follow in the vicinity of whales.[187] Carole Carlson points out that there are regulations in Hawaii and Alaska that are part of the ESA for humpback whales, but there are only guidelines for vessels traveling near humpbacks in the North East.[188] Therefore, federal regulations are probably not the whole solution to the issue of whalewatching's impact on whales in Stellwagen Bank.

Joanne Jarzobski believes that enforcement is the key to protecting whales in Stellwagen, since "just because you have enforceable regulations doesn't mean you are better protecting whales or getting better compliance UNLESS there is someone enforcing the rules." [189] Lisa Fox thinks that the whole problem is with who is supposed to be doing the enforcing and the lack of funding for the

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[185] Farady.
[186] Asmutis-Silvia, telephone communication, and Reilly.
[187] Reilly.
[188] Carlson.
[189] Jarzobski.

enforcement. Currently, the Coast Guard is in charge of enforcing the North Atlantic right whale regulations, the ESA, and the MMPA, but they have no money to actually enforce. Therefore, Lisa Fox thinks that she has only seen Coast Guard enforcement on Stellwagen Bank four or five times in the last two years.[190]

The other problem that sanctuaries have to deal with when creating enforceable regulations is figuring out to whom the regulations apply. Commercial whalewatching is an easy target in the whale harassment issue, but the commercial whalewatch operators are only a small part of a much bigger problem.[191] The whalewatching industry does not want to be targeted for regulations that would only apply to them, and by "creating regulations, which would solely impact commercial whalewatching within the sanctuary, or reduce the abilities of, at least, some companies to operate would not only reduce the public access to the sanctuary but would likely result in reduced conservation, research, and outreach, a direct conflict with the mission of the sanctuary."[192] Also, no other commercial industries that use the sanctuary waters want to have more regulations placed upon them.

If enforceable regulations were put into place they would have to apply to *all* sanctuary users because all vessels that transit through the borders of Stellwagen are in an area where whales migrating. The fact that twenty-six of the

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[190] Fox.
[191] Asmutis-Silvia, telephone communication.
[192] MMVS-Plan, A-14.

thirty-seven reported vessel strikes in the greater sanctuary area were caused by types of vessels other than whalewatching vessels illustrates that other vessels are also impacting whales. Many of the vessel types are unknown, but the incidents for which the vessel types are known have involved recreational vessels, a Navy ship, a merchant ship, a United States Coast Guard vessel, a ferry, and a container ship.[193]

Also, it is recreational whalewatchers who commit the most obvious acts of harassment towards whales, such as driving over bubble nets. By driving over the bubble net, a boat causes the humpback to abort their feeding or smash into the boat. Either way the vessel has caused a change in a humpback whale's behavior, and causing a change in behavior of a humpback violates both the MMPA and the ESA and constitutes a taking. Since it is recreational vessels that are most dangerous to whales, the enforceable regulations must apply to them.[194] If regulations do not apply to recreational boaters, they can use the excuse that when they broke the rules they were not whalewatching, but just happened to be in transit or fishing in an area where there were also whales. If a situation is created where a vessel must be engaged in whalewatching in order to be in violation of the regulations, commercial whalewatching vessels will be unfairly targeted and the majority of vessels endangering whales will not have to suffer any repercussions for their actions.[195]

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[193] Asmutis-Silvia, personal communication.
[194] Loebig.
[195] Asmutis-Silvia, telephone communication.

Stellwagen Bank formed a working group on marine mammal vessel strike to develop suggestions for the sanctuary management plan review that is currently underway. This group could not agree upon the course of action that should be taken in order to regulate whalewatching and better protect the whales in the sanctuary. Therefore, they have come up with several different options of what actions can be taken. The first action is to codify the existing guidelines in the new sanctuary management plan. Some of the members of the working group felt that by codifying the existing guidelines the rate of compliance would improve. The advantage of codifying the guidelines is that they are already known and understood by the whalewatching industry.[196]

A second method that members of the working group noted as a possibility is to use the same regulations that are used in Hawaii and Alaska with regards to approach distances to endangered species of whales.[197] In Hawaii and Alaska vessels may not get any closer than 300 feet to an endangered type of whale.[198] The third action that members felt could be taken was to issue "special use permits" to operators who pay to get trained in responsible boating. The "special use permits" would allow vessel go 100 feet from a whale. Members feel that "special use permits" would encourage people to get trained in responsible boating.[199] There are many issues concerning the legality of the "special uses

[196] MMVS-Plan, 16.
[197] Ibid.
[198] Ibid.
[199] Ibid.

permits" plan or any scheme that would involve incentives for education because of the limit control the sanctuary has over recreational boaters.[200]

The fourth suggested plan also involved education for whalewatch operators through a certification program. This program would not be mandatory, but it would be a good publicity tool for whalewatching companies that do get certified. In order to maintain their certification whalewatch operators would have to comply with the whalewatching guidelines.[201] The fifth suggestion made by the working group is to have increased compliance monitoring through unknown sanctuary observers aboard whalewatching vessels. These observers would then notify the vessel owner of any non-compliance that occurred aboard their boat.[202] A sixth method that some members think should be used is the creation of a Whale Watch Association, which would allow the sanctuary and the whale watch operators to work together on issues that are important to both parties.[203] Also, a Whale Watch association might give operators an added incentive to comply with the guidelines if compliance was a term of membership to the association.[204]

Stellwagen Bank also has a working group to focus on the issue of marine mammal behavioral disturbance for the sanctuary management plan review. This group had many ideas on how to inform the recreational and commercial boaters

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[200] Asmutis-Silvia, telephone communication.
[201] *Gerry E. Studds* Stellwagen Bank National Marine Sanctuary Mammal Vessel Strike Action Plan.
[202] Ibid.
[203] Ibid.
[204] Carlson.

about marine mammal behavioral disturbance. This paper will present only a few of them. The working group thought that the sanctuary could offer a "safe whalewatchers" class to educate recreational and commercial whalewatchers. As an incentive to get boaters to attend a "safe whalewatchers" class the sanctuary would allow certified boaters closers access to whales.[205] The sanctuary could pursue educating the public on whalewatching through youth involvement. The sanctuary realizes that they have access to "a great untapped resource" in schools and youth groups, and Stellwagen also realize that by educating youth they would also gain access to a new pool of volunteers for the sanctuary.[206]

Susan Farady and Regina Asmutis-Silvia both stated that as long as the sanctuary is using voluntary guidelines to help protect whales the general public must be better educated about the guidelines.[207] In an ideal world, the sanctuary would make guidelines available to every harbormaster, yacht club, and marina in the Stellwagen Bank region to hand out to all of their recreational boaters. But, the sanctuary does not operate in an ideal world with an unlimited budget, and conservation organizations are trying to make recreational boaters more aware of whalewatching guidelines through the "See a Spout, Watch Out" campaign.[208]

The goal of this campaign is try to provide brochures of the whalewatching guidelines out to as many recreational boaters as possible. The

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[205] Marine Mammal Behavioral Disturbance Working Group, *Gerry E. Studds* Stellwagen Bank National Marine Sanctuary Marine Mammal Behavioral Disturbance Action Plan (Stellwagen Bank, 2004), 5.
[206] Ibid., 7.
[207] Farady, and Asmutis-Silvia, telephone communication.
[208] Asmutis-Silvia, telephone communication.

"See a Spout, Watch Out" sponsors are also postering at yacht clubs and marinas in areas that have easy access to the sanctuary.[209] Also, there is now a ten-minute lecture on whalewatching guidelines during safe boater classes in Massachusetts. Mark Wiley believes there is one big problem with using education as the only way of getting recreational boaters to help protect whales. The problem is that everybody makes the assumption that education leads to behavior change, but nobody is really sure how much of an impact it has upon a person.[210]

Captain Reilly believes that education is not the solution for recreational boaters and that enforcement is the key because from what he sees recreational whalewatchers have a "blatant disregard" for whalewatching policies. Mason Weinrich agrees that education is not the solution and that better enforcement is needed. He believes that if there were people on the water watching boaters' actions and asking boaters, "what are you doing?", boaters would be more likely to think about their actions.[211] Regina Asmutis-Silvia has noticed that the presence of enforcement officials on the water makes people better behaved, and she believes that the sanctuary should have people on the water, not only to enforce regulations, but to also educate the recreational boaters about the whalewatching guidelines.[212]

Several people interviewed believe that commercial whalewatching operators do not need to be further educated about whalewatching guidelines

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[209] Asmutis-Silvia, telephone communication.
[210] M. Wiley.
[211] Weinrich

because they are all aware of them, and most operators make a conscious decision to either follow or ignore the guidelines. Since most commercial vessels provide some type of educational component to passengers and they have a captive audience that is interested in the topic, both Regina Asmutis-Silvia and Susan Farady think that the sanctuary could take better advantage of the commercial whalewatching fleet to educate the public about the sanctuary.[213] Mason Weinrich knows that the information given to passengers varies greatly between companies and between naturalists, but all naturalists try to send passengers away with an appreciation of whales and their habitat.[214]

Most of the scientists, conservationists, and educators on the SAC agree that Stellwagen is not doing enough to protect whales. According to Susan Farady, the Ocean Conservancy views Stellwagen as a "paper park," a designated area that on paper reads as if it is providing protection to its resources, but in reality provides very little protection to anything.[215] The Sanctuary's lack of action is frustrating to many parties with a vested interest in the area because Stellwagen Bank has the potential to provide great protection to all of the resources in its boundaries if only they set up regulations that are enforced within the sanctuary's boundaries. Regina Asmutis-Silvia believes Stellwagen has the

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[212] Asmutis-Silvia, telephone communication.
[213] Asmutis-Silvia, telephone communication and Farady.
[214] Weinrich.
[215] Farady.

ability to find funding through grants and community donors for any program that they want to establish to protect whales.[216]

Many parties also think that the sanctuary is doing the best they can to protect resources given their limited resources, and the complexity of the issues that the sanctuary is facing.[217] Creating a way to better protect whales is going to be very difficult because all of the stakeholders in the sanctuary have conflicting interests. When creating new regulations to protect whales the sanctuary is going to have to find a delicate balance between providing adequate protection and allowing multiple uses. The one thing that no stakeholder wants to see happen is a "tragedy of the cubical" where government officials set up regulations that they think will work without consulting the users of the sanctuary and fail to take into account whether the regulations are realistic or not.[218]

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[216] Ibid.
[217] Fox
[218] Asmutis-Silvia, telephone communication.

HAWAIIAN ISLAND HUMPBACK WHALE NATIONAL MARINE SANCTUARY

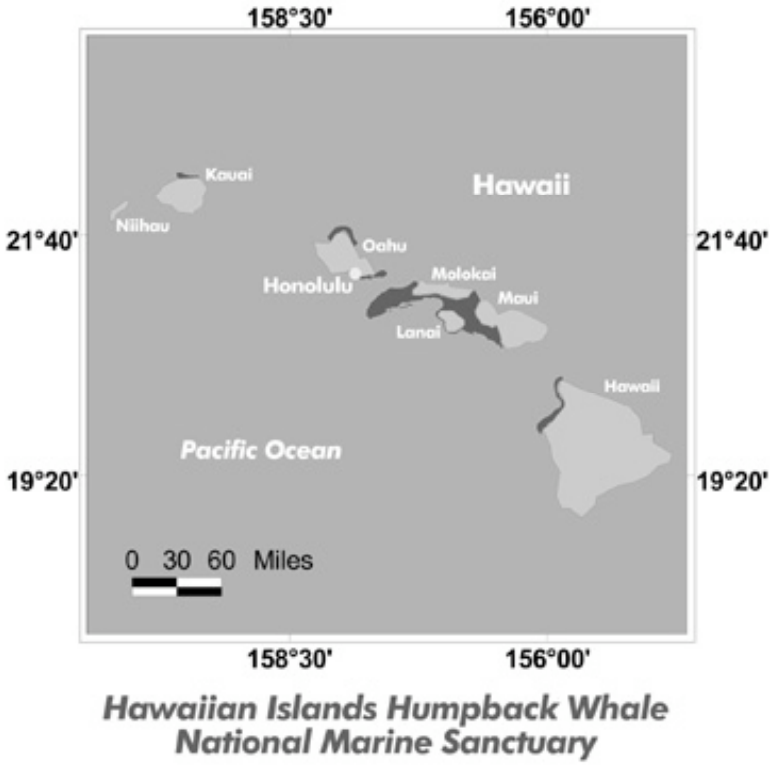

Figure 5- Hawaiian Islands Humpback Whale National Marine Sanctuary[219]

In March 1982, NOAA recommended to Congress that the waters around the major Hawaiian Islands be considered for designation as a National Marine

[219] Hawaiian Islands Humpback Whale National Marine Sanctuary [online resource] accessed 1 February 2005, available from http://www.sanctuaries.nos.noaa.gov/oms/omshawaii/omshawaii.html.

Sanctuary. Ten years later, on November 4, 1992, Congress designated these waters as Hawaiian Islands Humpback Whale National Marine Sanctuary (Hawaiian Islands). The sanctuary is composed of 1,218-square-nautical-miles of waters in five noncontiguous areas around the islands of Maui, Lana'i, Moloka'i, O'ahu, and the Big Island of Hawai'i.[220] For the following five years, NOAA and sanctuary employees wrote the regulations to govern the sanctuary, and on March 28, 1997, the government published the final regulations. The final sanctuary management plan went into effect on June 2, 1997.[221]

Between 1997 and 2002, Hawaiian Islands operated with the primary purpose of protecting humpback whales and their habitat. In 2002, the sanctuary underwent a five-year management plan review. The review process led to a revised management plan. The new management plan includes a revised vision statement by which the sanctuary guides its practices. The vision statement is:

> The Sanctuary works collaboratively to sustain a safe and healthy habitat for the North Pacific stock of humpback whales (*kohola*). As a community of ocean stewards, the Sanctuary strives to achieve a balance of appropriate uses, inspired care-taking, enlightened understanding, and effective education to ensure the continued presence of the *kohola* for future generations. The Sanctuary endeavors to do this with harmony, hope, respect, and *aloha o ke kai* (love of the sea).[222]

Hawaiian Islands aims to fulfill its vision statement and the mission of the NMSA by conserving and protecting humpback whales and their natural habitat. The

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[220] 15 CFR part 922.181
[221] Revised Management Plan.
[222] Ibid.

sanctuary also encourages research that will foster a better understanding of humpbacks and their habitat.[223]

Whalewatching is one of the primary ways that the public uses the sanctuary to learn about humpback whales. Through whalewatching, the sanctuary also contributes to the economy of the Hawaiian Islands. There is what is termed an "ocean tour boat industry" in Hawai'i.[224] This industry is made up of whalewatching trips, dinner cruises, snorkeling trips, and sunset cruises. The reason that all of these different activities are lumped together is because many dinner cruises, snorkeling trips, and sunset cruises also advertise that there is the possibility of seeing a whale.[225] An economic study of the ocean tour boat industry published in 2000 showed that roughly seventy-five percent of the customers going on dinner cruise leaving from Maui knew that there was the possibility of seeing whales.[226] Also, since whalewatching is a seasonal industry, many of the vessels that are used solely for whalewatching from December through April are used for other purposes during the rest of the year.

There has been growth in the "ocean tour boat industry."[227] In 1983, there were approximately thirty-nine vessels engaged in whalewatching in Hawai'i, and by 1999 there were fifty-two vessels that were committed to whalewatching

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[223] Ibid.
[224] McIntosh, telephone.
[225] Dan Utech, "Valuing Hawai'i's Humpback Whale: The Economic Impacts on Hawai'i's Ocean Tour Boat Industry," The Economic Contribution of Whalewatching to Regional Economies: Perspectives from Two National Marine Sanctuaries (Silver Springs, MD: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Marine Sanctuaries Division, 2000), 11. This is the most recent comprehensive data available.
[226] Ibid., 14.

during the peak season.[228] [229] These fifty-two vessels went on an average of eighty-seven trips per day, taking approximately 370,000 people out over the course of the entire season.[230] The direct revenue from whalewatching trips in 1999 was eleven million dollars.[231] Using the numbers obtained from the Utech study it was calculated that the whalewatching industry is able to support the equivalent of 280-390 full-time jobs. The entire "ocean tour boat industry" is comprised of approximately 100 companies that own a total of about 150 vessels and provide 3, 200 jobs.[232] An estimate of the total income that these vessels brought into the Hawaiian economy in 1999 was 225 million dollars in direct, indirect, and induced revenues.[233]

With so many boats connected to the "ocean tour industry," the effects of whalewatching and whalewatching-related activities on whales are a concern for the sanctuary managers. Research on whales in Hawaiian Islands has not decisively proven whether or not whalewatching is having effects on whales in the sanctuary. A study carried out by Au and Green showed that the noise that vessels create while whalewatching should not disturb the humpback whales as

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[227] Ibid., 14.
[228] RichardTinney, Review of Information Bearing Upon the Conservation and Protection of Humpback Whales in Hawaii (Arlington, VA: Richard Tinney & Associates, 1988) 12.
[229] Utech, 16. The facts from Utech's study are used in this paper because his study is the last one that provided an in depth analysis of the impact of whalewatching in Hawai'i.
[230] Ibid., 10.
[231] Ibid., 12.
[232] Ibid., 38.
[233] Ibid., 12.

long as vessels are complying with the 100 yard regulations.[234] Reginald White, Vice-President of Operations for Paradise Cruise, Ltd. and Superstar Hawaii Transit, believes that if whalewatching vessels follow the guidelines and regulations for Hawaiian Islands there should be zero impact on the whales.

The biggest impact of whalewatching that David Matilla, research coordinator at Hawaiian Islands Humpback Whale National Marine Sanctuary, has identified is that whalewatching has habituated the humpbacks to vessel presence.[235] Humpback whales in Hawaiian Islands are so comfortable in the presence of boats that they perform a behavior that Hawaiian whalewatching operators and scientists have named "mugging." Mugging is when a humpback surfaces and watches the whalewatching vessels.[236] Some would say that mugging is a negative impact of whalewatching, although one man in an interview said that whales behave this way because they "caught the aloha spirit."[237]

The reason that the individuals interviewed believe that there is not more impact upon the humpbacks is that Hawaiian Islands provides additional protection to whales through its enforceable whalewatching regulations. Humpback whales in Hawaii are provided with special protection under the ESA, as well as the National Marine Sanctuaries Act. Therefore, all of the humpback

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[234] David Mattila referenced a study by Au and Green during the telephone interview on 18 February 2005.
[235] Mattila.
[236] Reginald White, Vice-President of Operations for Paradise Cruise, Ltd., and Superstar Hawaii Transit, telephone interview 28 February 2005.
[237] Ibid.

whales which whalewatchers actively pursue are, in theory, well protected by enforceable regulations. The Coast Guard monitors the sanctuary waters using helicopters and small vessels to make sure that people are complying with the enforceable regulations.[238] NOAA Fisheries Office for Law Enforcement promotes Community Oriented Policing and Problem Solving (COPPS). COPPS is a method that encourages voluntary compliance through educating the public about laws pertaining to marine mammals.[239] Mr. White is a supporter of COPPS, and he believes that education and not punishment is the way to make recreational and commercial whalewatchers aware of how their actions affect the humpback whales.[240]

Even with the regulations and monitoring that Hawai‘i has to protect whales, violations still occur, and enforcing the regulations proves to be a difficult task. According to Naomi McIntosh, Sanctuary Manager, the sanctuary has not had major problems with commercial whalewatching companies causing harassment to whales. She believes that this is because the companies are interested in protecting the resource that they rely on for business and because they are very familiar with the whalewatching regulations that are place in sanctuary waters.[241] According to the individuals interviewed, the recreational

[238] Commander Robert Wilson, United States Coast Guard, telephone interview, 1 February 2005.
[239] Hawaii's Marine Protected Species a Handbook for Ocean Users, 5.
[240] White.
[241] McIntosh, telephone.

sector is more difficult to control than the commercial sector. It is harder for the sanctuary to communicate with recreational whalewatchers, many of whom are tourists renting kayaks and paddling out to see whales.[242] Coast Guard Enforcement Commander Robert Wilson stated that when his office receives complaints about people violating the whalewatching regulations, the majority are related to kayakers getting too close to humpback whales.[243] Naomi McIntosh finds the lack of regard or knowledge of regulations that the kayakers have troubling for kayakers because in addition to them breaking federal regulations, kayakers who violate the distance regulations are also putting themselves in harms way.[244] A kayaker who paddles too close to a humpback whale runs the risk of getting injured should the whale hit the kayak or create wake that capsizes the kayak.

Another problem the sanctuary faces is vessel strikes. The 2002 Revised Management Plan included a mandate to examine how vessels impact whales. One result of this mandate is a study published in 2003 by Lammers, Pack, and Davis from the Oceanwide Science Institute, Hawaii Institute of Marine Biology, and Kewalo Basin Marine Mammal Laboratory on the history of whale/vessel collisions in the areas that are now sanctuary waters. The researchers obtained data on vessel strikes by reading public records and surveying members of the

[242] McIntosh, phone.
[243] Wilson.
[244] McIntosh, phone.

maritime community. This study discovered twenty-two vessel strikes that were publicly reported between 1975 and 2003.

Thirteen of these incidents occurred between 1995 and 2003.[245] Many of the incidents that this study learned of were lacking in detail. However, it is conclusive that on February 15, 2001 a juvenile whale breached into a stationary vessel that was engaged in whalewatching, and again on March 15, 2002, a whale struck a stationary whalewatching vessel.[246] Then, on February 10, 2003, a whalewatching vessel hit a whale while going to the whalewatching grounds. The last incident included in the study occurred when a whalewatching boat, which was returning to port after sunset, struck a whale.[247] In all four of these cases there were no apparent injuries to the whales. Since this report was published in August 2003, there were three more vessel strikes that occurred between December 2003 and February 2004.[248]

In addition to commissioning a study on whale/vessel interactions in the sanctuary waters, Hawaiian Islands held a workshop from September 3-5, 2003 on "Management Needs to Minimize Vessel Collisions with Whales in the Hawaiian Islands Humpback Whale National Marine Sanctuary and other

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[245] Marc O. Lammers, Ph.D., Adam Pack, Ph.D., and Lisa Davis, "Historic Evidence of Whale/Vessel Collision in Hawaiian Waters (1975-Present)," (Hawai'i: OSI Technical Report 2003-01, 2003), 3.
[246] Ibid., 10.
[247] Ibid., 10.
[248] "Workshop Report on Management Needs to Minimize Vessel Collision with Whales in the Hawaiian Islands Humpback Whale National Marine Sanctuary and other National Marine Sanctuaries," (Maui, Hawai'i: United States Department of Commerce National Oceanic and Atmospheric Administration, 2003), 9.

National Marine Sanctuaries." At this meeting, participants identified three factors that they believed were leading to increased concern about vessel strikes in Hawaiian Islands. The first is the increasing vessel traffic in sanctuary waters; the second is the escalating speed of vessels as they transit sanctuary waters; and the third is the increasing size of the humpback whale population.[249] During the meeting, participants split up into three separate working groups to discuss large commercial vessels, commercial passenger and support vessels, and private recreational vessels. Each group discussed the unique issues there are associated with the different size vessels and then came up with recommendations on what can be done to minimize whale/vessel interactions.

The members of the commercial passenger working group came up with a list of actions that the sanctuary and commercial vessels currently perform that help to prevent vessel strikes. This working group believes that the sanctuary and operators are doing well educating vessel crews about responsible viewing.[250] The working group also stated that the sanctuary's Ocean Users Guide is beneficial.[251] The Ocean Users Guide is a booklet that the sanctuary publishes, containing the laws and guidelines that apply within sanctuary waters. The guide also has information on the endangered species that use the sanctuary and instructions on what a person should do if they see an injured or entangled animal. The working

[249] Ibid., 11.
[250] Ibid., 22.
[251] Ibid.

group also expressed the belief that for commercial operators, concern for the well-being of whales helps to prevent vessel strikes.[252]

The working group also discussed changes that could be made to improve the safety of whales in Hawaiian Islands. The working group felt that the sanctuary could enhance the education vessel operators receive by adding new workshops and materials. The working group thought that operators would have an even greater incentive to keep whales safe if the operators created an industry code of conduct.

The commercial passenger working group believed that the 100 yard regulations could be improved.[253] The members think that a clearer definition of approach in the 100 yard regulations would improve whale safety. They also mentioned that perhaps different wording of the regulations would improve people's understanding of the rule.[254] The commercial passenger and support vessel group also identified the need for the sanctuary to study vessel speeds to see how fast is too fast for a vessel to be moving. One other idea that the group discussed was the difference between transiting and approaching, and how these two words need to have clear and well-established definitions.[255]

The private recreational vessels group decided that more information would be necessary before any conclusions could be made about the role

[252] Ibid.
[253] Ibid., 22.
[254] Ibid., 22.
[255] Ibid., 22.

recreational boaters play in whale/vessel interactions. Therefore, this group's top priority is research on how recreational boater impact humpback whales, and its other priority is to continue creating and enhancing educational and outreach programs.[256] Among the ideas for programs that the sanctuary can run to educate recreational boaters about whale/vessel interactions is for the sanctuary to produce water-friendly supplements to the Ocean Users Guide. The group would also like to see the sanctuary provide all information in multiple languages.[257] The conclusion reached by all three working groups that participated in this workshop was that whale/vessel interactions were an issue to be aware of, but not a critical issue for Hawaiian Islands at this time. [258]

Naomi McIntosh, manager of Hawaiian Islands Humpback Whale National Marine Sanctuary, thinks that it is very important for the sanctuary to further investigate how many whale/vessel interactions are occurring and get a handle on the population level of the humpback whales.[259] McIntosh said that in 2003, sanctuary users sighted 300 more whales then were sighted in 1999, which translates to a growth rate of seven percent per year.[260] At the same time the whale population is expanding, so too are the number of vessels and the speeds of the vessels. Therefore, McIntosh stresses the importance of balancing the *take*

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[256] Ibid., 23.
[257] Ibid., 24.
[258] Ibid., 9.
[259] McIntosh, telephone.
[260] Ibid.

level with the level of the population. If the percentage of the humpback population that is being accidentally injured or killed by humans is rising, then it is important for the sanctuary to take additional steps to keep humpback whales safe in sanctuary waters.[261] McIntosh said that once more information about the size of the whale population and number of strikes that have occurred in the sanctuary is gathered, the sanctuary will take all steps they can to minimize the impact of vessels on whales. The sanctuary will take these steps if the information reveals that vessel strikes are a growing problem.[262] McIntosh believes that it is crucial to maintain an open line of communication between the whalewatching industry and the sanctuary employees. Communication is need so that both parties can learn more about vessel strikes and figure out a method to manage them, because neither sanctuary employees nor tour operators want vessel strikes to occur.[263]

McIntosh feels that stronger enforcement of the sanctuary's regulations is needed. Commander Wilson of the United States Coast Guard stated that it is "somewhat difficult" to prove *takings* of whales under the MMPA and ESA unless there is actual documentation in the form of a picture or a video.[264] Another challenge in enforcing the regulations is that a vessel can break the distance regulation for many different reasons. Commander Wilson realizes that

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[261] Ibid.
[262] Ibid.
[263] Ibid.
[264] Wilson.

it is not always the vessel's fault if it is comes closer than 100 yards from a humpback whale, and it is tricky to determine what events led up to a vessel breaking the distance regulation.[265]

White would also support the idea of more individuals being involved in enforcement of the whalewatching regulations. White thinks that the additional enforcement staff could be volunteers or government officials, but he believes that more enforcement staff should be focused on educating rather than disciplining whalewatchers.[266] White stresses the importance of education, because he suspects that the majority of violators are just ignorant about the policies. Therefore, additional enforcement staff could potentially educate recreational whalewatchers as they were leaving from the dock and prevent violations of the whalewatching regulations before they occur.[267]

Hawaiian Islands also strives to educate the public about humpback whales. There are many different aspects of the sanctuary's involvement with efforts to educate the public about whales and whalewatching. First, the sanctuary tries to teach both commercial and recreational whalewatchers about responsible whalewatching by running workshops and safe boater classes. Commander Wilson stated, that "education is the biggest thing that must be done to protect whales," and, because of its importance, the sanctuary and government agencies involved in the enforcement of whalewatching regulations make

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[265] Ibid.
[266] White.
[267] Ibid.

education a top priority.[268] Hawaiian Islands distributes brochures, pamphlets, newspaper inserts, and booklets to the general public to spread awareness of the whalewatching regulations. Currently, the sanctuary offers all materials free of charge to the general public and produces them in mass quantities.[269] For example, the sanctuary coordinated with a number of partners to produce a newspaper insert on the importance of the sanctuary and the traditional importance of humpback whales that was distributed to approximately 250,000 individuals and households.[270]

The sanctuary, in partnership with the State of Hawai'i Department of Land and Natural Resources and Hawaiian Ocean Safety Team, an organization made up of representatives from a wide array of marine related fields, is also beginning to display information about whalewatching regulations at launch docks all over the state. The goal of these posters is to inform recreational whalewatchers of the regulations before they get onto the water. Sponsors hope that in the future, this campaign will also work with kayak rental companies to stick decals on their equipment so that customers are reminded of the rules when they are in the sanctuary.

White hopes that in the future, as part of the safe whalewatching campaign, decals with the regulations printed on them can be sent out with boater

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[268] Wilson.
[269] McIntosh, telephone.
[270] Ibid.

re-registration forms as a reminder of proper whalewatching protocol.[271] Other long-term goals of the sanctuary are to show a video on safe whalewatching practices on hotel room televisions in Waikiki and to get local news programs to have a segment on safe whalewatching practices that the television stations air at the beginning of the whalewatching season.[272] Hawaiian Islands hopes that as it begins to figure out more precisely whom its target audience is, the sanctuary will be able to tailor the educational materials being offered to those users.[273]

Commercial whalewatching teaches the public about whales through the information that is given to passengers on whalewatching trips. Most of the commercial whalewatching vessels in Hawai‘i carry a naturalist on board in order to provide information on the sanctuary and its inhabitants to the whalewatchers. Commander Wilson conjectured that ninety percent or more of the commercial whalewatching operators in Hawaiian Islands would consider education to be one of their main goals.[274] Reginald White declared that education is one of the main goals of his whalewatching company.[275] The vessels operated by the company for which White works always carry trained naturalists as part of the crew. The company reviews the information naturalists are conveying to passengers several times per season to make sure that they are not deviating from the correct facts. White's company re-trains permanent employees at the beginning of each whalewatching season. The goal of Mr. White's company, Paradise Cruise, Ltd.

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[271] White.
[272] McIntosh, telephone.
[273] Ibid.

and Superstar Hawaii Transit, is to turn people from having a vague interest in whales into people who actively want to help protect the whales.[276] Unfortunately, as Naomi McIntosh attests, the quality of education aboard vessels varies greatly, and not all naturalists provide correct information about whales and the ecology of the sanctuary. One way to remedy this problem would be for the sanctuary to offer a free workshop to train naturalists, but Naomi McIntosh is worried that by providing the workshops, the sanctuary will be putting for-profit companies that train naturalists out of business.[277]

All individuals interviewed agree that the sanctuary is doing a good job of protecting the humpback whales. McIntosh, as sanctuary manager, feels that the sanctuary has gotten off to a very good start during its relatively short existence and looks forward to a growing education program to spread awareness of the sanctuary's purpose. She also thinks that many new policy solutions will have to be made as vessel technology changes.[278] Commander Wilson thinks that the sanctuary is taking all the steps that they can in order to provide the best protection possible to the humpback whales.[279] White considers education to be the key for getting the public to understand the importance of protecting humpback whales.[280]

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[274] Wilson.
[275] White.
[276] Ibid.
[277] McIntosh, telephone.
[278] McIntosh, telephone.
[279] Wilson.
[280] White.

POLICY RECOMMENDATIONS

Even though Stellwagen Bank National Marine Sanctuary and Hawaiian Islands National Marine Sanctuary both have primary goals of protecting whales and providing education to the public, the two sanctuaries are very different. Hawaiian Islands's vision statement and management plan are structured around protecting the humpback whale, while at Stellwagen Bank, whales are only one of the many natural resources that the sanctuary is supposed to be managing. Therefore, Hawaiian Islands can devote the majority of their resources to the protection of humpback whales, and Stellwagen must split time, energy, and funds among all of the natural resources they are managing. The cetacean populations in the two sanctuaries are also very different. Hawaiian Islands main goal is to protect humpback whales, while Stellwagen Bank is part of the migration route for at least seventeen different species of cetaceans, including five that are on the endangered list.[281]

Because Stellwagen and Hawaiian Islands are both committed to protecting whales, regulations, guidelines, and policies governing the sanctuaries must be revised to better prevent *harassment* and *takings*. Since Stellwagen Bank

[281] Ward, 143

and Hawaiian Islands are two very different sanctuaries with unique sets of problems to control, one management plan will not meet the needs of both sanctuaries. Two separate plans must be created, so that they are tailored to the individual needs of the sanctuaries. This chapter is going to present an analysis of the information collected in the interviews and suggest changes that the sanctuaries can make to strengthen the education that they offer people and the regulations they have in place to protect whales.

Ideas for Better Whale Protection in Stellwagen Bank

The biggest concern about the management of whales in Stellwagen Bank is that there is almost universal consensus among the individuals interviewed for this report that the sanctuary is not providing enough protection for the whales that migrate through the sanctuary boarders. Since Stellwagen Bank does have the authority to create more stringent rules and regulations for sanctuary waters, Stellwagen needs to take advantage of the sanctuary's potential ability to provide a high level of protection to marine mammals. One step the sanctuary could take to better protect whales is to enact enforceable regulations in its revised management plan. While not every user of the marine sanctuary would like to see enforceable regulations created to protect whales, the sanctuary must start living up to its responsibility and create enforceable regulations to better protect cetaceans.

The regulations that are created must apply to all sanctuary users. If regulations apply to just one sector of sanctuary users, whalewatchers, the

regulations would be difficult for officials to enforce. Regulations that apply to only one sector of users would be hard to enforce because recreational vessels use the sanctuary for many activities, and enforcement officials would have difficulty charging recreational whalewatchers with a violation of whalewatching regulations. As long as whale regulations apply to all sanctuary users every vessel in the sanctuaries would have to comply.

I believe that since Stellwagen is on the migration route of a diverse group of whales, the regulations that the sanctuary creates should divide the whale population into three different classes: critically endangered, endangered, and non-endangered. Each class should have different regulations that apply to the cetaceans in that class, and compliance within the sanctuary should be mandatory for all boaters. For the North Atlantic right whale, a critically endangered species, the following regulation should apply: no vessel within sanctuary waters should be able to approach any closer than 500 yards from the North Atlantic right whales. This distance is the same as the current federal regulation. This distance should remain because the species is critically endangered and prone to being injured and killed by humans.

Sei, blue, fin, and humpback whales are also endangered species that use Stellwagen Bank. The sanctuary should establish a 100-yard buffer zone in which no vessel is allowed to travel, unless the vessel is assisting a whale. Only one vessel should be allowed in the range of 100 to150 yards from an endangered whale at a time. This regulation could ideally prevent *harassment* of endangered

whales and prevent hearing problems. Two vessels should be permitted in the 150 to 200 yard zone at a time, and all other vessels must wait outside the 200 yard zone until a boater that is closer to the whale exits the 200 yard vicinity. From the information reviewed for this study, I have concluded that fewer vessels in close contact with a whale at one time would decrease the likelihood of a whale being *harassed* or *harmed*.

For all non-endangered whales in the sanctuary, vessels should not approach any closer than fifty yards. This is fifty feet farther than the current whalewatching guidelines suggest, but I think the extra fifty feet will help prevent *harassment and takings* of whales as defined by the MMPA. There should also be approach zone regulations for non-endangered whales. Only one vessel should be allowed in the fifty to 150 yard zone at a time, and two vessels should be allowed to be standing by in the 150 to 250 yard zone. In addition to the distance regulations for each class of whale, the sanctuary should also make the current suggested speed guidelines for whale watching vessels into enforceable regulations for all vessels.

I believe that the sanctuary should make the distance and speed regulations enforceable because these regulations make sense for all boats traveling the in sanctuary. Therefore, no one industry is being singled out and having regulations created that only impact them and their business. The regulations that I am proposing would have an impact on the whalewatching, shipping, and fishing industry, but the regulations would help the sanctuary to

achieve its goal of protecting marine mammals. The speed limit would cause large container ships to need to transit the sanctuary at a slower speed. Slowing down cargo ships would cost both time and money.[282] It currently costs companies between $25,000 and $100,000 a day to rent a vessel. Some vessels that travel through the sanctuary are restricted to transiting during daylight hours and/or high water hours. Reducing vessel speeds for whales could mean that it would take a vessel an entire extra day to transit the sanctuary because it would not be able to travel at fast speeds.[283] New regulations would also impact the research that takes place aboard whalewatching vessels because the researchers would not be able to go as close to the whales as they are currently going. New regulations might cause some scientists to apply for permits to take research vessels closer to the whales to supplement the research that they are doing from the whale watching vessels. If scientists feel they need to go closer to the whales, it will cost them more money to perform research projects.

The distance and speed regulations are important because if a vessel cannot get closer than fifty yards from whales, the chance of a vessel strike decreases. These regulations also take into account the fact that people do not always stick to the exact regulation, but if there is the threat of enforcement it is more likely people will stay within a reasonable range of what the regulations allows. As Regina Asmutis-Silvia says, people are not always going to follow the

[282] William C. Eldridge, Owner/operator, Peabody and Lane Corporation/ Mediterranean Shipping Company Incorporated, phone interview, 14 March 2005.
[283] Ibid.

speed limits on the highway, but as long as they have the knowledge that a police officer could give them a ticket they will stick within five to ten miles of the speed limit.[284]

The next action that the sanctuary should take is to get enforcement officials into the sanctuary waters since people are less likely to disregard the regulations if they know someone is around who could fine them thousands of dollars for breaking regulations. The only way enforceable regulations are going to work is if there is the threat of enforcement. While it is the Coast Guard's job to enforce the MMPA and ESA in Stellwagen Bank, it is also the responsibility of Stellwagen and NOAA. Between all of these organizations, I believe vessels in sanctuary waters should be seeing enforcement officials more than a couple times a year. The presence of enforcement is especially important in the summer months because there are so many recreational boaters in the sanctuary. Also, the summer months are the peak months for whales to migrate through Stellwagen.

The recreational boaters are going to be the hardest group of sanctuary users to inform about the regulations, so the sanctuary is going to have to work on strengthening its educational outreach program to recreational boaters. As Susan Farady stated, so many people do not even know that there is a marine sanctuary in New England. So how, she asks, are people ever supposed to know that there

[284] Asmutis-Silvia, phone.

are rules to follow within the boundaries of a place that they do not even know exists?[285]

Therefore, the first action Stellwagen should take is to start a publicity campaign to educate the general public that there is a National Marine Sanctuary in New England. This should be done using a variety of venues and means. One way to inform the local population about Stellwagen is to have local papers run articles on the importance of Stellwagen Bank. A second way would be to have short segments about Stellwagen on local public access television networks. The sanctuary could ask whalewatching companies to offer special trips to elementary, middle, and high schools in their communities to teach students about the ecology and history of the sanctuary. Stellwagen Bank could also ask the New England Aquarium to team up with them to do an exhibit on New England's only National Marine Sanctuary. The sanctuary could also sponsor poetry and essay contests in schools throughout New England in order to educate students and teachers about Stellwagen.

If Stellwagen is going to be successful in their goals of being a well known sanctuary that provides protection to marine resources, the sanctuary is also going to have to inform visitors about Stellwagen Bank. In order to do this Stellwagen should ask tour books about New England to include the sanctuary as a site of interest. Stellwagen should also try to get travel magazines to write articles about the whalewatching in the sanctuary. Stellwagen could also work

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[285] Farady.

with the hotels in the major port cities and towns near the sanctuary to get them to show a program about the sanctuary on the hotel television or hand out information on the importance of the sanctuary to hotel visitors. I think that once people know about and understand the goals of Stellwagen Bank National Marine Sanctuary, they would want to follow the additional regulations inside of the sanctuary in order to help the sanctuary meet their goal of providing protection to a wide array of natural marine resources.

Another sector that the sanctuary should try to work with is the commercial whalewatching vessels. The sanctuary could train the naturalist aboard whalewatching vessels to all give the same brief lecture on the history and goals of the Stellwagen. Additionally, during whalewatching season, the sanctuary could send out volunteers on whalewatching boats to distribute information and answer questions for the passengers. The sanctuary volunteers aboard whalewatching vessels might also make captains more likely to follow regulations because there would be an individual trained by and associated with sanctuary there to see any violations that vessels make.

Once the public is educated about the mission of Stellwagen, the next goal the sanctuary should have is to educate the public about the special regulations that apply to all vessels, including recreational ones, within the sanctuary boarders. This process is going to be harder than getting word out about the existence of the sanctuary because the target audience is a more select group of people, but it is also a more amorphous group. Not all recreational boats that use

the sanctuary waters are from Massachusetts and not all operators of the vessels are registered or certified in any way to be driving a boat. Therefore, Massachusetts' boaters are going to have to be the main target audience, but boaters leaving from locations in Maine, New Hampshire, Connecticut, New York, and Rhode Island will also have to be informed of the regulations.

The sanctuary would need to make sure that all harbor masters in the areas around the sanctuary are aware of the whale regulations in Stellwagen. The sanctuary could do this by running a training session at Stellwagen or by sending out information on the regulations. The information must then be transferred from the harbormasters to the boaters that leave from their harbors. This could be accomplished by providing the harbor master with information to hand out to boaters, as was suggested by Susan Farady, or harbormasters could organize local information sessions on the regulations.[286] The sanctuary would need to make sure that all posters and signs are prominently displayed at docks, yacht clubs, boat launches, and fueling/pump-out stations in the greater sanctuary area. I think that informing harbormasters and posting signs to educate boaters are realistic recommendations that the sanctuary could achieve.

Other ideas I have for improving recreational boaters' knowledge of the regulations involves direct communication between the sanctuary and the boaters. The sanctuary should mail stickers that have the regulations and illustrations of the different types of whales printed on them with boater registration forms in

[286] Farady.

Massachusetts. These stickers should be weatherproof so that they can be placed on the boat and used as a reference guide should the boater forget the exact regulations. The sanctuary should make boaters that register their boats or take safe boating classes in Massachusetts sign a form attesting to the fact that they have received information on the regulations and that they understand what the penalties for non-compliance are. These two methods would be difficult for the sanctuary to carry out on its own. If the sanctuary forms partnerships with other organizations and governmental agencies, these suggestions are realistic possibilities.

The sanctuary must also educate the commercial users about the new regulations. Commercial operators are an easier audience to target since there are records kept of the names of commercial users of the sanctuary. The sanctuary should run information sessions for all of the commercial industries to train them on the new regulations. Stellwagen should also provide a guide for all commercial vessels containing pictures of each species of whale and all of the regulations. The sanctuary could run a class for commercial vessel captains who want to receive a certification in Stellwagen regulations. As an incentive for commercial operators to get trained on the regulations, the sanctuary could post a list of certified commercial vessels on its web site.

In addition to the enforceable regulations, the sanctuary should create a revised version of the current whalewatching guidelines. The revised guidelines would include rules that only target whalewatchers. Therefore, it would be unfair

to make the revised guidelines into regulations because they would only impact one sector of the sanctuary's users. The voluntary guidelines would include suggestions that the whalewatching industry helps to create. The whalewatching industry would be more likely to comply with guidelines if the whalewatching operators actively participate in the creation on the rules. Based on my interviews with whalewatch operators, I believe that some of the guidelines that the whalewatch operators would agree with the rules for close approach and the suggested time limit for a vessel to stay in the close approach zone.

I do not think that whalewatchers would object to the time limit because there have been fewer whales in the sanctuary recently and more boats are eager to see each whale that is sighted. Therefore, it would be a common courtesy to not take too much time in the zone closest to the whale, since only one vessel can be in the close approach zone at time. The close approach guidelines already have a high compliance rate among the commercial whalewatch companies, and the commercial operators understand that if they do not follow the close approach rules they could end up *harassing* the whale and causing it to change course.

All of the recommendations I have proposed would make Stellwagen Bank National Marine Sanctuary a safer place for whales. The regulations would provide whales with better protection against injury and *harassment* from all vessels that use the sanctuary. The revised voluntary whalewatching guidelines would hopefully have a higher compliance rate. The ideas proposed to inform and educate the recreational and commercial users would hopefully make

everyone more knowledgeable about the purpose and special importance of the area. Through a combination of education and enforceable regulations, Stellwagen Bank could provide strong protection to cetaceans.

Proposed Plans for Hawaiian Islands Humpback Whale National Marine Sanctuary

All of the individuals interviewed from Hawaiian Islands agree that the sanctuary is currently providing adequate protection to whales. The high level of protection offered to whales in Hawaiian Islands is in part due to the fact that specific regulations to protect whales in the sanctuary are included in the ESA. I think that if the Hawaiian Islands added one more enforceable regulation for whalewatchers to follow, the whales would receive an even higher level of protection. The one regulation is to control the number of vessels in the close approach zone because humpbacks are showing signs of habituation to vessels. These signs are the "mugging" behavior, which is a behavior that is not exhibited by most humpback whales, and the frequency which humpback whales initiate closer contact with the vessels.

There are no easy answers to the questions of how habituation can be avoided, or how can whales that are already exhibiting signs of habituation can break their habits. I would suggest that allowing only one vessel to approach a whale in the 100 to 150 yard zone at a time, and only allowing two vessels to wait in the 150 to 250 yard zone could reduce the level of habituation whales in Hawaiian Islands experience. I am proposing this regulation because I believe

that humpbacks in Hawai‘i would have fewer vessels in the close approach zone to distract them from their natural behaviors. It is very possible that this regulation would not work to stop habituation because humpbacks might enjoy rubbing against the hulls of vessels to remove barnacles from their backs, or they might already be too used to vessels.

Since the biggest offenders of the regulations are recreational kayakers, the sanctuary should start a stronger campaign to educate kayakers. Many of the individuals who are going kayaking in the sanctuary are tourists who are going in rental kayaks. An ideal place to inform this subsection of kayakers of the regulations would be at the kayak rental shops. The employees of the rental shops would have to inform the kayakers that they are not to approach any closer than 100 yards from a whale for the safety of the whale and for the safety of the kayaker. The kayak shop should stress the fact that the 100 yard rule is a federal regulation, and the fact that if a kayaker is caught violating the regulation s/he is subject to the punishments of the ESA. The program to educate rental kayakers could be run through NOAA because it promotes the ideals of Community Oriented Policing and Problem Solving.

Tourists should also be informed about the presence of the sanctuary and of the role it plays in preserving native Hawaiian culture through protecting the humpback whale. Since most tourists fly to Hawai‘i, an easy way for the sanctuary to reach a large percentage of the tourists would be by showing an in-flight educational video. The in-flight video should be shown in a variety of

languages so that it could be understood by a larger array of visitors. This idea would be realistic if the sanctuary could form partnerships with the airlines servicing the main islands. A second way that the sanctuary could reach many tourists is by providing information on the sanctuary in hotel rooms. This information could be in the form of a magazine, a pamphlet, or a show on the hotel's television channel.

I also learned that Hawaiian Islands is having trouble with naturalists on commercial vessels. The naturalists are not all trained to the standards that the sanctuary would like to see, so not all naturalists are able to offer passengers the same quality of educational experiences. The sanctuary is worried about offering mandatory trainings for naturalists because it does not want to put the people that currently train naturalists out of business. Therefore, the sanctuary should make it mandatory that the sanctuary certifies all naturalist trainers. The sanctuary can do this by offering courses to the trainers to teach the trainers what knowledge a naturalist should be armed with before the naturalist starts working on commercial whalewatching vessels. This solution does not put the naturalist trainers out of business nor does it cost the trainers any money, so it is a win/win situation for the trainers. The trainers get better educated, and they are allowed to continue to train naturalist.

CONCLUSION

I believe Stellwagen is not currently fulfilling its goals of educating the public and protecting whales against *harassment* and *takings*, and that Hawaiian Islands could take additional measures to provide even better protection to whales and education to the public. The recommendations made in this paper, if enacted, would hopefully create better protection for whales in Stellwagen Bank National Marine Sanctuary and Hawaiian Islands Humpback Whale National Marine Sanctuary. Since marine sanctuary managers and NOAA have the ability to create regulations specifically adapted to each individual marine sanctuary, it is time that sanctuaries start taking advantage of their special designations. A National Marine Sanctuary should be offering more stringent protection to the species that it is supposed to manage. Stellwagen and Hawaiian Islands should start offering better protection now because the future for whales is uncertain. By implementing better whalewatching regulations, the public can continue to learn about a whale population that is recovering and responding well national and international policies.

The sanctuaries can also start to better educate the public about the goals of National Marine Sanctuaries and whalewatching. Stellwagen and Hawaiian Islands should also make sure that naturalists on commercial whalewatching

vessels are well trained. Naturalists who are versed and knowledgeable about whalewatching should provide quality information to passengers. Public education about whales is essential to preventing future generations from repeating mistakes made by past generations with regards to use and abuse of whale populations.

Every year the demands for the IWC to lift the indefinite moratorium on whaling are getting more numerous and louder, and the scientific evidence that whale populations are growing is making some members of the IWC think that whaling quotas should be reinstated. The reinstatement of legal whaling quotas through the IWC could have an especially high impact on the whales that migrate through regions where there is a lot of whalewatching, since whales that are habituated to whalewatching are not afraid of vessels. These curious and friendly whales would be easy targets for whaling vessels. In the next few years, the IWC is going to have some critical decisions to make, and these decisions are going to determine whether the IWC is issuing whalewatching regulations or whaling quotas. At this critical time in the history of human-whale interactions National Marine Sanctuaries should aim to provide the highest quality of education available to the public on whales and their habitats, and National Marine Sanctuaries should also give whales areas where they are protected from all threats.

APPENDICES

APPENDIX A

INTERVIEW QUESTIONS

1. Do you think whalewatching has any negative impacts on whales, if yes, what impacts?
2. From what you have seen do most commercial whalewatching vessels follow the whalewatching guidelines?

A. Do you think that enforceable regulations would better protect whales?

A. What could be done to better educate people (both recreational and commercial whaleatchers as well as the general public) about whalewatching guidelines?

B. What methods do you think are best to use to inform the public about whalewatching policies?

C. What role do you think whalewatching plays in educating people about whales and the ecology of Stellwagen Bank National Marine Sanctuary or Hawaiian Islands Humpback Whale National Marine Sanctuary?

D. Is Stellwagen Bank National Marine Sanctuary or Hawaiian Islands Humpback Whale National Marine Sanctuary providing enough protection for whales?

APPENDIX B
INTERNATIONAL CONVENTION FOR THE REGULATION OF WHALING WASHINGTON, 2ND DECEMBER, 1946[1]

The Governments whose duly authorized representatives have subscribed hereto,

Recognizing the interest of the nations of the world in safeguarding for future generations the great natural resources represented by the whale stocks;

Considering that the history of whaling has seen over-fishing of one area after another and of one species of whale after another to such a degree that it is essential to protect all species of whales from further over-fishing;

Recognizing that the whale stocks are susceptible of natural increases if whaling is properly regulated, and that increases in the size of whale stocks will permit increases in the number of whales which may be captured without endangering these natural resources;

Recognizing that it is in the common interest to achieve the optimum level of whale stocks as rapidly as possible without causing widespread economic and nutritional distress;

Recognizing that in the course of achieving these objectives, whaling operations should be confined to those species best able to sustain exploitation in order to give an interval for recovery to certain species of whales now depleted in numbers;

Desiring to establish a system of international regulation for the whale fisheries to ensure proper and effective conservation and development of whale stocks on the basis of the principles embodied in the provisions of the International Agreement for the Regulation of Whaling, signed in London on 8th June, 1937, and the protocols to that Agreement signed in London on 24th June, 1938, and 26th November, 1945; and

Having decided to conclude a convention to provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry;

Have agreed as follows:-

Article I

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[1] "International Convention for the Regulation of Whaling" [online-resource], accessed 19 April 2005, available from http://www.iwcoffice.org/commission/convention.htm#convention.

1. This Convention includes the Schedule attached thereto which forms an integral part thereof. All references to "Convention" shall be understood as including the said Schedule either in its present terms or as amended in accordance with the provisions of Article V.
2. This Convention applies to factory ships, land stations, and whale catchers under the jurisdiction of the Contracting Governments and to all waters in which whaling is prosecuted by such factory ships, land stations, and whale catchers.

Article II

As used in this Convention:-

1. "Factory ship" means a ship in which or on which whales are treated either wholly or in part;
2. "Land station" means a factory on the land at which whales are treated whether wholly or in part;
3. "Whale catcher" means a ship used for the purpose of hunting, taking, towing, holding on to, or scouting for whales;
4. "Contracting Government" means any Government which has deposited an instrument of ratification or has given notice of adherence to this Convention.

Article III

1. The Contracting Governments agree to establish an International Whaling Commission, hereinafter referred to as the Commission, to be composed of one member from each Contracting Government. Each member shall have one vote and may be accompanied by one or more experts and advisers.
2. The Commission shall elect from its own members a Chairman and Vice-Chairman and shall determine its own Rules of Procedure. Decisions of the Commission shall be taken by a simple majority of those members voting except that a three-fourths majority of those members voting shall be required for action in pursuance of Article V. The Rules of Procedure may provide for decisions otherwise than at meetings of the Commission.
3. The Commission may appoint its own Secretary and staff.
4. The Commission may set up, from among its own members and experts or advisers, such committees as it considers desirable to perform such functions as it may authorize.
5. The expenses of each member of the Commission and of his experts and advisers shall be determined by his own Government.
6. Recognizing that specialized agencies related to the United Nations will be concerned with the conservation and development of whale fisheries and the products arising therefrom and desiring to avoid duplication of functions, the Contracting Governments will consult among themselves within two years after the coming into force of this Convention to decide whether the Commission shall be brought within the framework of a specialized agency

related to the United Nations.

7. In the meantime the Government of the United Kingdom of Great Britain and Northern Ireland shall arrange, in consultation with the other Contracting Governments, to convene the first meeting of the Commission, and shall initiate the consultation referred to in paragraph 6 above.
8. Subsequent meetings of the Commission shall be convened as the Commission may determine.

Article IV

1. The Commission may either in collaboration with or through independent agencies of the Contracting Governments or other public or private agencies, establishments, or organizations, or independently; (a) encourage, recommend, or if necessary, organize studies and investigations relating to whales and whaling; (b)collect and analyze statistical information concerning the current condition and trend of the whale stocks and the effects of whaling activities thereon; (c)study, appraise, and disseminate information concerning methods of maintaining and increasing the populations of whale stocks.
2. The Commission shall arrange for the publication of reports of its activities, and it may publish independently or in collaboration with the International Bureau for Whaling Statistics at Sandefjord in Norway and other organizations and agencies such reports as it deems appropriate, as well as statistical, scientific, and other pertinent information relating to whales and whaling.

Article V

1. The Commission may amend from time to time the provisions of the Schedule by adopting regulations with respect to the conservation and utilization of whale resources, fixing (a) protected and unprotected species; (b) open and closed seasons; (c) open and closed waters, including the designation of sanctuary areas; (d) size limits for each species; (e) time, methods, and intensity of whaling (including the maximum catch of whales to be taken in any one season); (f) types and specifications of gear and apparatus and appliances which may be used; (g) methods of measurement; and (h) catch returns and other statistical and biological records.
2. These amendments of the Schedule (a) shall be such as are necessary to carry out the objectives and purposes of this Convention and to provide for the conservation, development, and optimum utilization of the whale resources; (b) shall be based on scientific findings; (c) shall not involve restrictions on the number or nationality of factory ships or land stations, nor allocate specific quotas to any factory or ship or land station or to any group of factory ships or land stations; and (d) shall take into consideration the interests of the consumers of whale products and the whaling industry.
3. Each of such amendments shall become effective with respect to the Contracting Governments ninety days following notification of the amendment by the Commission to each of the Contracting Governments, except that (a) if

any Government presents to the Commission objection to any amendment prior to the expiration of this ninety-day period, the amendment shall not become effective with respect to any of the Governments for an additional ninety days; (b) thereupon, any other Contracting Government may present objection to the amendment at any time prior to the expiration of the additional ninety-day period, or before the expiration of thirty days from the date of receipt of the last objection received during such additional ninety-day period, whichever date shall be the later; and (c) thereafter, the amendment shall become effective with respect to all Contracting Governments which have not presented objection but shall not become effective with respect to any Government which has so objected until such date as the objection is withdrawn. The Commission shall notify each Contracting Government immediately upon receipt of each objection and withdrawal and each Contracting Government shall acknowledge receipt of all notifications of amendments, objections, and withdrawals.

4. No amendments shall become effective before 1st July, 1949.

Article VI

The Commission may from time to time make recommendations to any or all Contracting Governments on any matters which relate to whales or whaling and to the objectives and purposes of this Convention.

Article VII

The Contracting Government shall ensure prompt transmission to the International Bureau for Whaling Statistics at Sandefjord in Norway, or to such other body as the Commission may designate, of notifications and statistical and other information required by this Convention in such form and manner as may be prescribed by the Commission.

Article VIII

1. Notwithstanding anything contained in this Convention any Contracting Government may grant to any of its nationals a special permit authorizing that national to kill, take and treat whales for purposes of scientific research subject to such restrictions as to number and subject to such other conditions as the Contracting Government thinks fit, and the killing, taking, and treating of whales in accordance with the provisions of this Article shall be exempt from the operation of this Convention. Each Contracting Government shall report at once to the Commission all such authorizations which it has granted. Each Contracting Government may at any time revoke any such special permit which it has granted.
2. Any whales taken under these special permits shall so far as practicable be processed and the proceeds shall be dealt with in accordance with directions

issued by the Government by which the permit was granted.

3. Each Contracting Government shall transmit to such body as may be designated by the Commission, in so far as practicable, and at intervals of not more than one year, scientific information available to that Government with respect to whales and whaling, including the results of research conducted pursuant to paragraph 1 of this Article and to Article IV.
4. Recognizing that continuous collection and analysis of biological data in connection with the operations of factory ships and land stations are indispensable to sound and constructive management of the whale fisheries, the Contracting Governments will take all practicable measures to obtain such data.

Article IX

1. Each Contracting Government shall take appropriate measures to ensure the application of the provisions of this Convention and the punishment of infractions against the said provisions in operations carried out by persons or by vessels under its jurisdiction.
2. No bonus or other remuneration calculated with relation to the results of their work shall be paid to the gunners and crews of whale catchers in respect of any whales the taking of which is forbidden by this Convention.
3. Prosecution for infractions against or contraventions of this Convention shall be instituted by the Government having jurisdiction over the offence.
4. Each Contracting Government shall transmit to the Commission full details of each infraction of the provisions of this Convention by persons or vessels under the jurisdiction of that Government as reported by its inspectors. This information shall include a statement of measures taken for dealing with the infraction and of penalties imposed.

Article X

1. This Convention shall be ratified and the instruments of ratifications shall be deposited with the Government of the United States of America.
2. Any Government which has not signed this Convention may adhere thereto after it enters into force by a notification in writing to the Government of the United States of America.
3. The Government of the United States of America shall inform all other signatory Governments and all adhering Governments of all ratifications deposited and adherences received.
4. This Convention shall, when instruments of ratification have been deposited by at least six signatory Governments, which shall include the Governments of the Netherlands, Norway, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, enter into force with respect to those Governments and shall enter into force with respect to each Government which subsequently ratifies or adheres on the date of the deposit of its instrument of ratification or the receipt

of its notification of adherence.

5. The provisions of the Schedule shall not apply prior to 1st July, 1948. Amendments to the Schedule adopted pursuant to Article V shall not apply prior to 1st July, 1949.

Article XI

Any Contracting Government may withdraw from this Convention on 30th June, of any year by giving notice on or before 1st January, of the same year to the depository Government, which upon receipt of such a notice shall at once communicate it to the other Contracting Governments. Any other Contracting Government may, in like manner, within one month of the receipt of a copy of such a notice from the depository Government give notice of withdrawal, so that the Convention shall cease to be in force on 30th June, of the same year with respect to the Government giving such notice of withdrawal.

The Convention shall bear the date on which it is opened for signature and shall remain open for signature for a period of fourteen days thereafter.

In witness whereof the undersigned, being duly authorized, have signed this Convention.

Done in Washington this second day of December, 1946, in the English language, the original of which shall be deposited in the archives of the Government of the United States of America. The Government of the United States of America shall transmit certified copies thereof to all the other signatory and adhering Governments.

SIGNATORIES:

_ FOR CHILE: Augustín R. Edwards
_ FOR PERU: Carlos Rotalde
_ FOR AGENTINA: Oscar Ivanissevich, José Manuel Moneta, Guillermo Brown, Pedro H. Bruno Videla
_ FOR DENMARK: Peter Friedrich Erichsen
_ FOR THE UNION OF SOVIET SOCIALIST REPUBLICS: Alexander S. Bogdanov, Eugine I. Nikishin
_ FOR AUSTRALIA: Francis F. Anderson
_ FOR FRANCE: Francis Lacoste
_ FOR THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND: A.T.A. Dobson, J. Thomson
_ FOR BRAZIL: Paulo Fróes da Cruz
_ FOR THE NETHERLANDS: Guy Richardson Powles
_ FOR THE UNITED STATES OF AMERICA: Remington Kellogg, Ira N. Gabrielson, William E.S. Flory

_ FOR CANADA: H.H. Wrong, H.A. Scott
_ FOR NEW ZEALAND: Birger Bergersen
_ FOR THE UNION OF SOUTH AFRICA: H.T. Andrews

THE PROTOCOL

WASHINGTON, 19TH NOVEMBER 1956

Protocol to the International Convention for the Regulation of Whaling Signed at Washington under date of December 2, 1946

The Contracting Governments to the International Convention for the Regulation of Whaling signed at Washington under date of 2nd December, 1946 which Convention is hereinafter referred to as the 1946 Whaling Convention, desiring to extend the application of that Convention to helicopters and other aircraft and to include provisions on methods of inspection among those Schedule provisions which may be amended by the Commission, agree as follows:

Article I

Subparagraph 3 of the Article II of the 1946 Whaling Convention shall be amended to read as follows:

"3. 'whale catcher' means a helicopter, or other aircraft, or a ship, used for the purpose of hunting, taking, killing, towing, holding on to, or scouting for whales."

Article II

Paragraph 1 of Article V of the 1946 Whaling Convention shall be amended by deleting the word "and" preceding clause (h), substituting a semicolon for the period at the end of the paragraph, and adding the following language: "and (i) methods of inspection".

Article III

1. This Protocol shall be open for signature and ratification or for adherence on behalf of any Contracting Government to the 1946 Whaling Convention.
2. This Protocol shall enter into force on the date upon which instruments of ratification have been deposited with, or written notifications of adherence have been received by, the Government of the United States of America on behalf of all the Contracting Governments to the 1946 Whaling Convention.
3. The Government of the United States of America shall inform all Governments signatory or adhering to the 1946 Whaling Convention of all ratifications deposited and adherences received.

4. This Protocol shall bear the date on which it is opened for signature and shall remain open for signature for a period of fourteen days thereafter, following which period it shall be open for adherence.

IN WITNESS WHEREOF the undersigned, being duly authorized, have signed this Protocol.

DONE in Washington this nineteenth day of November, 1956, in the English Language, the original of which shall be deposited in the archives of the Government of the United States of America. The Government of the United States of America shall transmit certified copies thereof to all Governments signatory or adhering to the 1946 Whaling Convention.

SIGNATORIES:

_ FOR CHILE: Augustín R. Edwards
_ FOR PERU: Carlos Rotalde
_ FOR AGENTINA: Oscar Ivanissevich, José Manuel Moneta, Guillermo Brown, Pedro H. Bruno Videla
_ FOR DENMARK: Peter Friedrich Erichsen
_ FOR THE UNION OF SOVIET SOCIALIST REPUBLICS: Alexander S. Bogdanov, Eugine I. Nikishin
_ FOR AUSTRALIA: Francis F. Anderson
_ FOR FRANCE: Francis Lacoste
_ FOR THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND: A.T.A. Dobson, J. Thomson
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_ FOR NEW ZEALAND: Birger Bergersen
_ FOR THE UNION OF SOUTH AFRICA: H.T. Andrews

APPENDIX C
INTERNATIONAL WHALING COMMISSION'S GENERAL PRINCIPLES FOR WHALEWATCHING[2]

(1) Manage the development of whalewatching to minimise the risk of adverse impacts:

i. implement as appropriate measures to regulate platform1 numbers and size, activity, frequency and length of exposure in encounters with individuals and groups of whales;
   - management measures may include closed seasons or areas where required to provide additional protection;
   - ideally, undertake an early assessment of the numbers, distribution and other characteristics of the target population/s in an area;
ii. monitor the effectiveness of management provisions and modify them as required to accommodate new information;
iii. where new whalewatching operations are evolving, start cautiously, moderating activity until sufficient information is available on which to base any further development;
iv. implement scientific research and population monitoring and collection of information on operations, target cetaceans and possible impacts, including those on the acoustic environment, as an early and integral component of management;
v. develop training programs for operators and crew on the biology and behaviour of target species, whalewatching operations, and the management provisions in effect;
vi. encourage the provision of accurate and informative material to whalewatchers, to:
   - develop an informed and supportive public;
   - encourage development of realistic expectations of encounters and avoid disappointment and pressure for increasingly risky behaviour.

(2) Design, maintain and operate platforms to minimise the risk of adverse effects on cetaceans, including disturbance from noise:

i. vessels, engines and other equipment should be designed, maintained, and operated during whalewatching, to reduce as far as practicable adverse impacts on the target species and their environment;
ii. cetacean species may respond differently to low and high frequency sounds, relative sound intensity or rapid changes in sound;
   - vessel operators should be aware of the acoustic characteristics of the target species and of their vessel under operating conditions; particularly of the

[2] "International Whaling Commission's General Principles for Whalewatching" [online resource], accessed 9 February 2005 , available from http://www.iwcoffice.org/conservation/wwguidelines.htm.

need to reduce as far as possible production of potentially disturbing sound;

iii. vessel design and operation should minimise the risk of injury to cetaceans should contact occur; for example, shrouding of propellers can reduce both noise and risk of injury;

iv. operators should be able to keep track of whales during an encounter.

(3) Allow the cetaceans to control the nature and duration of 'interactions':

i. operators should have a sound understanding of the behaviour of the cetaceans and be aware of behavioural changes which may indicate disturbance;

ii. in approaching or accompanying cetaceans, maximum platform speed should be determined relative to that of the cetacean, and should not exceed it once on station;

iii. use appropriate angles and distances of approach; species may react differently, and most existing guidelines preclude head-on approaches;

iv. friendly whale behaviour should be welcomed, but not cultivated; do not instigate direct contact with a platform;

v. avoid sudden changes in speed, direction or noise;

vi. do no alter platform speed or direction to counteract avoidance behaviour by cetaceans;

vii. do not pursue2, head off, or encircle cetaceans or cause groups to separate;

viii. approaches to mother/calf pairs and solitary calves and juveniles should be undertaken with special care;

- there may be an increased risk of disturbance to these animals, or risk of injury if vessels are approached by calves;

ix. cetaceans should be able to detect a platform at all times;

- while quiet operations are desirable, attempts to eliminate all noise may result in cetaceans being startled by a platform which has approached undetected;
- rough seas may elevate background noise to levels at which vessels are less detectable.

1 Any vessel (with or without engine), aircraft or person in the water.

2 Chase (as opposed to follow), causing the whale to change its course or speed.

APPENDIX D
WHALEWATCHING GUIDELINES FOR HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY[3]

GUIDELINES FOR WHALE WATCHING

A.GENERAL:

By regulation, humpback whales cannot be approached closer than 100 yards (90 meters) in Hawaiian waters. (50 CFR 224.103). The only exception for this approach restriction is by a scientific research permit authorized by NOAA Fisheries.

B.AIRCRAFT:

No approaches closer than 1,000 feet (300 meters) in Hawaiian waters.

C.BOATS/VESSELS:

In addition to the 100 yard approach restriction, vessel operators should also abide by the following:

• Never operate faster than the speed of the slowest whale when paralleling or following. • Always maneuver so as not to separate whales, especially mothers and calves.

• Never use a vessel to herd or drive whales.

ACCEPTABLE VIEWINGPOSITIONS:

1. Viewing from the Side: When a vessel is viewing a whale from either side, it should remain at least 100 yards from the whale and parallel the animal at that distance.
2. Viewing from the Rear: When a vessel is viewing from the rear, remain at least 100 yards behind the whale and adjust speed to that of the slowest whale.

UNACCEPTABLE MANEUVERS:

1. Approaching Head-On: Never approach a whale head-on or in the path of the animal. If a vessel finds itself in the path of the whale, it should maneuver out of the path of the animal and instead follow parallel at a distance of at least 100
2. Running in front or cutting across a whale's path.
3. Cutting a whale off from deep water.
4. Surrounding a whale.
5. Placing your vessel between a mother and calf.
6. Leapfrogging.

Adherence to these guidelines should limit the potential for harassing the whales during viewing activities. Your cooperation in following these guidelines is essential for the protection of these endangered animals. Avoiding harassment and continuing to provide a protected environment for the animals helps ensure

[3] Hawaiian Islands Guidelines.

that humpback whales will continue to use the Hawaiian breeding grounds for years to come.

SIGNS OF HARASSMENT INCLUDE:
• rapid change in direction and/or speed;
• escape tactics such as prolonged diving and underwater course changes, underwater exhalation or evasive swimming patterns, including swimming away rapidly;
• interruption of breeding, nursing, or resting activities;
• actions by a female to shield a calf from a boat or human behavior, evidenced by tail swishing, slapping or by other protective movements;
• or the abandonment of a previously frequented area.
FOR FURTHER INFORMATION, CONTACT: NOAA Fisheries Office for Law Enforcement (808) 541-2727 NOAA Fisheries (808) 973-2937 Hawaiian Islands Humpback Whale National Marine

APPENDIX E
NOAA - NATIONAL MARINE FISHERIES SERVICE & NATIONAL OCEAN SERVICE WHALEWATCHING GUIDELINES FOR THE NORTHEAST REGION INCLUDING THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY[4]

All whales, dolphins and porpoises in the northeast region are federally protected by the Marine Mammal Protection Act (MMPA) and most large whales in the area are further protected under the Endangered Species Act (ESA). Under these Acts, it is illegal to "harass, hunt, capture or kill" any marine mammal. Prohibited conduct includes any "negligent or intentional act which results in the disturbing or molesting of marine mammals."

The following operational procedures are intended to avoid harassment and possible injury to large whales, particularly the finbacks, humpbacks and minke whales commonly seen by vessels engaged in whale watching. Following the guidelines can help protect both you and the whale you wish to watch and keep you from accidentally violating federal law.

The right whale is protected by separate State and Federal regulations that prohibit approach within 500 yards of this species. Any vessel finding itself within the 500 yard buffer zone created by a surfacing right whale must depart immediately at a safe slow speed. The only vessels allowed to remain within 500 yards of a right whale are vessels with appropriate research permits, commercial fishing vessels in the act of hauling back or towing gear, or any vessel given prior approval by NMFS to investigate a potential entanglement.

OPERATIONAL GUIDELINES WHEN IN SIGHT OF WHALES:

From two miles to one mile away:
Reduce speed to 13 knots.
Post a dedicated lookout to assist the vessel operator in monitoring the location of all marine mammals.
Avoid sudden changes in speed and direction.
Aircraft observe the FAA minimum altitude of 1,000 feet over water.

From one mile to one-half mile away:
Reduce speed to 10 knots.

From one-half mile to 600 feet away:
Reduce speed to 7 knots.
Maneuver to avoid head-on approach.

Close approach procedure 600 feet or closer:

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[4] Stellwagen Guidelines.

Parallel the course and speed of moving whales up to the designated speed limit within that distance.
Do not attempt a head-on approach to whales. Approach and leave stationary whales at no more than idle or "no wake" speed, not to exceed 7 knots.
Do not intentionally drift down on whales. Vessels in multi-vessel approaches should maintain communication with each other (via VHF channels 9, 13, or 16 for hailing) to coordinate viewing.
Take into account the presence of obstacles (vessels, structures, fishing gear, or the shoreline). All vessels in close approach must stay to the side or behind the whales so they do not box in the whales or cut off their path.

Stand-by Zone -- From 300 feet to 600 feet away:
Two vessel limit within the 300- to 600-foot Stand-by Zone at any one time.

Close Approach Zone -- From 100 feet to 300 feet away:
One vessel limit.
Other vessels stand off. (up to two vessels in the Stand-by Zone – others outside 600 feet).
If more than one vessel is within 600 feet, the vessel within 300 feet should limit its time to 15 minutes in close approach to whales.

No Intentional Approach within 100 feet.
Do not approach within 100 feet of whales.
If whales approach within 100 feet of your vessel, put engines in neutral and do not re-engage propulsion until whales are observed clear of harm's way from your vessel.

Departure Procedure
All vessels should leave the whales following the same speed and distance procedures described above.

In order for vessels to be clear of whales before dark, vessels should cease whale watching and begin their return to port 15 minutes before sunset.

Penalties:
A violation of the Marine Mammal Protection Act or the Endangered Species Act may result in fines or civil penalties of up to $10,000 or criminal penalties of up to $20,000 plus IMPRISONMENT and/or SEIZURE OF VESSEL and other personal property.

APPENDIX F
GREATER SANCTUARY STRIKE REPORT[5]

Date	Sp	Location	Mortality	Vessel Type	Speed (Kt)	Length (m)	Comments
							Corinthian
5-14-00	Mn	SBNMS	U	ND	ND	ND	
4-20-99	Eg	CCB	Y	ND	ND	ND	Floater(Staccatto)
6-23-99	Ba	BH	Y	ND	ND	ND	Necropsy
9-12-98	Ba	CCB	Y	WW	25 (28)	24 (110')	Report
8-0(1)2-98	Mn	SBNMS	U(likely)	WW	18.3	36 (120')	Report(Zenith)
1998	Bp	SBNMS	Y??	WW	28	130'	Report
6-7-98	Mn	Wildcat	U	Merchant	ND	ND	
5-24-98	Ba	SBNMS	I	ND	ND	ND	
8-10-97	U	SBNMS	U	ND	ND	ND	
7-20-97	Mn	CCB	U	USCG	20	82.3	Report
5-12-97	Bp	BH	Y	ND	ND	ND	Floater
7-15-96	Ba	RP	No InJ	FERRY?	15	ND	
3-25-96	Eg	Welfleet	Y	ND	ND	ND	Necropsy
3-09-96	Eg	MA	Y	ND	ND	ND	Necropsy
11-17-94	Bb	BH	Y	Container	ND	ND	On Bow
7-19-94	Mn	SBNMS	U	ND	ND	ND	
8-11-93	Mn	SBNMS	I	Rec. ww			Fracture (report)
8-93	Bp	BH	Y	ND	ND	ND	Floater
6-21-91	Mn	SBNMS	I	WW	5-10 (7.5)	14 (46')	*Rocker*
6-08-90	Mn	SBNMS	U	ND	ND	ND	
6-1-90	Mn	SBNMS	I	Private Fish	11.5		Filament
5-13-88	Ba	Duxbury	Y	ND	ND	ND	Stranded-prop sc
01-15-88	Bp	Marshfield	Y	ND	ND	ND	Poss. Ship Str
08-18-87	Bp	BH	Y	ND	ND	ND	Folded in half
08-07-86	Eg	MA Bay	Y	ND	ND	ND	Severed spine
8-22-85	Mn	SBNMS	I	WW	6	60'	Report (Weinrich)
7-13-85	Bp	SBNMS	U	ND	ND	ND	
1984	Bp	SBNMS	Y	WW	12	80'	Report (Wiley)
8-84	Bp	SBNMS	U	WW	16 (19)	28 (100')	Report
1983	Mn	SBNMS	I	WW		85'	Alphorn (Wiley)
4-15-76	Eg	MA	Y	ND	ND	ND	Necropsy

Black- from Jensen and Silber (2003)
Red- reported at VSWG meeting by Weinrich/Wiley

Engaged in Whale Watching
Not engaged in Whale Watching

[5] Asmutis-Silvia, personal communication.

20/37 (54%) the vessel type is unknown.

There are 29 cases where the vessel behavior is known or can be inferred (necropsies conducted indicate large ship strikes and are, therefore, not likely from a vessels engaged in whale watching).
8/29 (28%)- engaged in whale watching
21/29 (72%)- not engaged in whale watching

In 22 of these cases, mortality or injury could be determined.
12/22 (59%) – mortalities resulting from vessels not engaged in whale watching
1/22 (4.5%)- mortalities resulting from vessels engaged in whale watching
While whale watching, there were no cases report where the focal animal was hit.

The table includes strikes outside of the Sanctuary but are included as they were from MA coast strandings, Boston Harbor, or Cape Cod Bay.

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