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Artisanal whaling in the Atlantic: a comparative study of culture, conflict, and conservation in St. Vincent and the Faroe Islands

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ARTISANAL WHALING IN THE ATLANTIC:
A COMPARATIVE STUDY OF CULTURE, CONFLICT, AND CONSERVATION IN ST. VINCENT AND THE FAROE ISLANDS

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Dedicated to my mother,
who first took me to the sea and taught me to explore.

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PREFACE: A NOTE ABOUT LANGUAGE

In this dissertation I have endeavored to understand the cultures and human-environment interactions of artisanal whaling in two very different Atlantic locations and to make comparisons between them. Whenever a researcher writes about another culture there are bound to be terms and concepts that are unfamiliar to the reader. When the research is based in two very different overseas field sites, the confusion can multiply. In the text of this manuscript I will attempt to either explicitly define any non-English words or terms of whaling or nautical jargon, or to use the terms in contexts that make their meanings obvious.

The official language of the Faroe Islands is Faroese. Danish is also used and English is widely understood. In St. Vincent, an English Creole is spoken. Many Vincentians speak Standard English fluently, albeit as a “foreign language” (Young 1993, 170). In this text, each time I have used a foreign or dialectal word, I have italicized the first instance and have provided definitions or Standard English equivalents within the text. Sometimes the italicization is repeated if reference is made to the word as a word, or within a figure caption. I have included pronunciation hints for especially difficult or commonly mispronounced words.

Developing orthographies for Creole languages can be a problematic and value-laden process (Cassidy 1961, 1986; Schieffelin and Doucet 1994; Kephart 2000). St. Vincent Creole does not have standardized spelling so I have used my best judgment and examples from previous publications to accurately represent the local pronunciation (Reinecke et al. 1975). My choice of spellings for St. Vincent Creole words should be seen only as an attempt to communicate, not to instruct.

Finally, there appear in this text several instances of gendered language that might be considered antiquated without context. Because whaling is almost exclusively a male activity, I have used masculine terms to refer to those who practice it. Gender roles are nuanced within the realm of whaling, however, and valuable contributions are made by men, women, and children, as will be made clear.

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ABSTRACT

Whalers from the Caribbean island of St. Vincent and the North Atlantic archipelago of the Faroe Islands hunt pilot whales and a variety of other small cetaceans for food. Vincentian whalers use harpoons, thrown by hand or fired from a modified shotgun mounted on the boat. Faroese whalers, using several dozen boats, work cooperatively to drive an entire pod of whales ashore, where shore-based whalers are waiting to complete the kill with traditional whaling knives. Vincentian whaling traces its origins to the late nineteenth century. Records of Faroese whaling date to the late sixteenth century but the practice is thought to be much older, originating perhaps as early as the tenth century. The annual average take of all cetaceans is 305 in St. Vincent and 1,358 in the Faroe Islands.

Whaling is both culturally and practically significant in both locations, providing not only a connection to history, but a source of food as well. However, the continuation of both operations may be threatened by the presence of methyl-mercury and other environmental pollutants in the tissues of the whales, which have been shown to have negative effects on human health. Additionally, both societies have had to negotiate the efforts of anti-whaling organizations, who employ methods such as protest, boycotts, and interventionary attempts to disrupt whaling activities.

While the majority of whaling operations throughout the world have ceased completely, owing to a severe decline in whale populations, the Vincentians and the Faroese have in place certain traditional conservation strategies to avoid overexploitation of the resource. Both societies place geographical limits upon the spaces in which whaling is allowed. The Faroese have codified certain traditional conservation practices into their legal codes including the

power of whaling authorities to forbid whale drives to occur if conditions are not favorable or if the food that would result is not needed. Additionally, whaling in the Faroe Islands is conducted communally and the commercialization of whaling is forbidden. Vincentian whalers have cautiously engaged available technological advances, adopting certain technologies to aid their efforts but declining to adopt technologies that might lead to overexploitation of the resource.

CHAPTER 1: INTRODUCTION

Research Settings

<u>Opposite Ends of the Gulf Stream</u>

As I descend the hill on foot into the village of Barrouallie, on the island of St. Vincent, there is nothing to distinguish this from any other small fishing community in the Caribbean. From my vantage I can see colorful boats drawn up onto the black sand beach; concrete and wooden structures with galvanized metal roofs; trees bearing breadfruit, plum, wax apple, and mango; and a few goats grazing on the otherwise empty cricket pitch, hemmed on each side by of a row of houses and shops. I turn left down a small lane between two houses and glimpse the sea. The insistent metallic beat and bawdy lyrics of *soca* music blare from a stereo system that has been turned up beyond its threshold volume. It is before noon but hot and broad-leafed Indian almond trees cast shade for the dozen or so dark-skinned men sipping rum on benches or leaning against beached fishing boats. A few are cleaning fish and one old man sits on the sand repairing a fishing net that he holds stretched on his lap with his toes. Women sit on overturned buckets feeding babies and a few stand by bamboo racks, hanging thin sheets of dark red meat to dry in the sun.

From the direction of these women and their work I detect a familiar scent, carried by the sea breeze, one that stands out from the other Caribbean smells—charcoal fires, overripe fruit, the dust of volcanic soil, diesel smoke, and the sea. This scent recalls a much different scene: the Faroe Islands, steep and green at the opposite end of the Gulf Stream from where I now stand; tall Nordic men with thick woolen sweaters and sandy blond hair, carefully coiling ropes, each with a foot-long hook at the end; a treeless landscape where rolling meadows terminate abruptly into thousand-foot sea cliffs that shelter literally millions of sea birds; black and white sheep standing out on the horizon against a gray sky; the background drone of centuries-old folk ballads telling tales of ancient kings, battles, and brave fishermen; turf-roofed primary-color houses, each with a tiny wooden outbuilding built with gaps between the planks to let gusts of North Atlantic wind rush through, and the same dark red meat, now cut into strips the length and thickness of my forearm, hung inside to dry in the salty air; the same scent carried on a much different wind.

Trans-Atlantic Connections

Whale meat smells like oil and history. It is a scent that was once common throughout the Atlantic but now is found on only a few peripheral islands, most prominently, St. Vincent and the Faroes. Since the latter half of the twentieth century, whaling has become an increasingly controversial subject. This transition is due primarily to the effectiveness of the technological advances that gave commercial whalers such an advantage over the object of their hunt that populations of the most intensely hunted species have still not recovered, despite varied efforts and policies directed at their conservation (Croll et al. 2006; Estes 2006; Donovan 2008). Some species, such as the Atlantic gray whale (*Eschrichtius robustus*), were pushed to the point of extinction (Jones and Swartz 2008). However, the Vincentians and the Faroese continue to hunt pilot whales and other small cetaceans using traditional methods and do so at what seem to be sustainable levels (Mitchell 1975; Culik 2004).

The women preparing meat on the tropical beach and the men coiling ropes under the gray Nordic sky may not, on the surface, appear to have much in common. Differences of ethnicity, nationality, affluence, language, history, and climate are far more obvious than any similarities between these two island peoples. However, despite being found at opposite corners of the North Atlantic Ocean, on opposite ends of the Gulf Stream, the Vincentians and the Faroese stand side-by-side at one end of another great continuum.

The world is deeply divided on the issue of whaling. While a few nations host whaling operations, using traditional methods for the local production of food and other products, and fewer still host commercial whaling operations, the majority of people, especially in developed, Western countries, oppose whaling unambiguously (Freeman 1990; Kalland 1993b; Sanderson 1994; Abdulla 1995; Brownell et al. 2000). However, acceptance of—and opposition to—whaling is not split into a simple dichotomy. At one end of the continuum, strongly opposed to whaling, stand predominately white, English-speaking, affluent, former-whaling nations such as the USA, the UK, and Australia (Kalland 1993a; 1993b; 1994a; 1998; 1999; 2009; Freeman 1990; Freeman and Kreuter 1994).

Toward the middle, yet still leaning toward opposition, are the nations without any history of whaling—some, even, that are landlocked—found throughout Europe and Central Asia, whose positions generally tend to oppose the resumption of commercial whaling (IWC 2010c). Further along the continuum are poorer, developing nations, often found in the Caribbean, sub-Saharan Africa, or the South Pacific, whose official positions on whaling are, controversially, highly susceptible to the influence of foreign aid—that is, the receiving nation often aligns its position on whaling to match the position of the donor nation (Roget 2002; Third Millennium Foundation 2007; Dippel 2008; Morikawa 2009).

Finally, there are the nations that fully support whaling—at least in certain manifestations. Leading this cadre are the commercial whaling nations of Japan, Iceland, and Norway, but also found at this end of the whaling continuum are the smaller, more traditional societies where whales are hunted in nearby waters for local consumption. These traditional whaling nations—both aboriginal and artisanal, the difference will be addressed shortly—are distributed globally from the Arctic to the tropics, and found, to some degree, on every inhabited continent (Mitchell 1975; Robards and Reeves n.d.). Among these, and most prominent in the Atlantic, are the Faroe Islands and St. Vincent—geographically disparate but united in their common reliance upon small cetaceans for food and cultural identity.

Research Questions

Why, when whaling ceased throughout the Atlantic, did it continue in these places? That is to ask, what is it about the histories, geographies, economies, and cuisines of these vastly different cultures that lead them to converge on the pilot whale as a food source? And how have the Vincentians and Faroese managed to maintain seemingly sustainable take levels, despite significant increases in both available technology and population? To answer these questions, a true geographical study of the cultures, conflicts, and conservation strategies that occur in each of the study locations is needed. I will show that these three themes are all borne of mutual causation and that their careful balancing in the histories and discourses of St. Vincent and the Faroe Islands has allowed for the continuation of whaling activities in these two places.

Of the contemporary whaling operations targeting small cetaceans, I have chosen to focus upon the Faroe Islands and St. Vincent because they are both legal operations with lengthy documented histories. Additionally, their positions along the Atlantic Rim makes these study locations all the more appropriate, considering Louisiana State University's current Atlantic Studies Initiative.

Layout of Dissertation

Chapter One began with a brief introduction to the perceptual similarities and differences of the two locations where this research has been conducted and has introduced whaling as a contentious activity with supporters and opponents found along a broad continuum. This first chapter has also established the research questions to be investigated: Why does Atlantic artisanal whaling occur today only in the Faroe Islands and St. Vincent? And how have the Vincentian and Faroese whalers managed to avoid the excessive take levels that have plagued other whaling operations throughout history and around the world?

Chapter Two provides background information on the evolutionary biology, taxonomy, and behavior of cetaceans, with a focus on long-finned and short-finned pilot whales. It then provides an overview of the history and emotion of human interaction with whales—through both whaling and whale conservation.

Chapter Three builds a theoretical framework upon a review of the relevant literature, beginning with the place of whales in the academic investigations of geography and other allied fields, through concepts of human agency as it relates to environmental change, the moral imperative to practice conservation, the effects of social constructs and human values on conservation initiatives, and the idea of conservation geography and the complementary roles of local, culturally-embedded conservation strategies and science-based sustainability initiatives. After narrowing the theoretical scope of this study, Chapter Three continues by reviewing previous scholarship on the topic of whaling worldwide, and on this and other environmental topics in St. Vincent and the Faroe Islands. This chapter concludes with the identification of some lacunae in the body of knowledge about human-environment interactions related to whaling, some of which have been addressed in the formation of the current research questions.

Chapter Four describes the methodology used to conduct the research for this dissertation. The tools of the geographer are many and I have attempted to integrate data gathered from a variety of approaches, including archival research, interviews and surveys, participant observation, and Geographical Information Systems (GIS) analysis. This chapter lays out the strategic plan used to gather data and the methods of analysis used to suggest answers to the research questions.

Chapters Five and Six are descriptive accounts of the two places and cultures that are the focus of this comparative research: St. Vincent and the Faroe Islands, respectively. These chapters present information about the physical and historical settings with special focus on local traditions of whaling. The majority of each of these two chapters focuses on present day whaling: its tools, methods, peoples, cultures, conflicts, and methods of conservation. Using photographs and descriptive text, these chapters leave the reader with a clear understanding of exactly what artisanal whaling is like in each of these Atlantic locations. Information for these descriptive accounts has been gathered through a combination of literature and first-hand experience. In many cases, what I describe has been described before. If I present information that I did not witness myself, I cite the source(s) from which it came. However, if I describe something that I witnessed first hand, I may cite corroborating research that has been previously published but I do not provide extensive citations of duplicate findings in all cases.

Chapter Seven presents the analytical results of my empirical research. I designed several self-contained investigations, which represent particular approaches to certain issues of physical and cultural geography related to the artisanal whaling operations in St. Vincent and the Faroe Islands. This chapter presents the results, which, together with the descriptive accounts of Chapters Five and Six, form the primary basis for comparison between the two sites.

Chapter Eight summarizes and concludes the dissertation by reviewing the major findings, acknowledging the shortcomings and questions that have been left unanswered, and placing the work within its larger academic environment.

Following the eight major chapters of this dissertation are an epilogue focusing upon a single family with unique ties to whaling in both field locations, a list of works cited, and several appendices comprised of relevant documents and whaling data for both locations.

CHAPTER 2: WHALES, THEIR PURSUIT AND PROTECTION

Whales

Evolution and Classification

All members of *Cetacea*—the order that includes whales, dolphins, and porpoises—trace their evolutionary ancestry back to terrestrial mammals. That cetaceans are mammals and not fish was known to Aristotle (350 BCE). However this fact seems to have been obscured as indicated by the common presence in historical literature of terms such as *whalefish* and *cetacean fishery*, as well as other literary and historical evidence. For example, Herman Melville (1851, 167) declared through *Moby Dick*'s narrator, Ishmael, that "waiving all argument, I take the good old-fashioned ground that the whale is a fish and call upon holy Jonah to back me." Jonah may not have backed Melville if given the chance. In fact, neither the Hebrew word used in the Book of Jonah (דג גדול – *dag gadowl*), nor the Greek word used in the Gospel of Matthew's reference to the story (κήτους – *kētous*), necessarily means *whale*. Both words are translated elsewhere as "*great fish*," or even as "*sea monster*" (Perowne 1905, 92). Theologians have filled many pages with conjecture on the species of sea creature that was meant to have swallowed Jonah, all without achieving much agreement with one another (e.g. Buckton 1851; Perowne 1905; Aalders 1948; Kravitz and Olitzky 2006).

The mammal vs. fish taxonomic argument was heard by an 1818 New York City court as part of the case *Maurice v. Judd* (Sampson 1819; Burnett 2007). The case involved a whale oil dealer who refused to pay a $75 fish oil inspection fee on the grounds that a whale is not a fish. The jury decided that whales are indeed fish and the fee should be paid. It took an act of state legislature to overturn the jury's decision and to place whales firmly and, at least within the

American judicial system, finally among the mammals (Burnett 2007).

These illustrate that whales have evolved within human culture perhaps even more they have in marine biology. In evolutionary history they have moved from land to sea; in popular taxonomy they have "evolved" at the class level. Throughout this dissertation I will use the term *whale* to refer to a variety of cetacean species. Also, following Reeves and Smith (2003; 2006), I will use the term *operation* to refer to a specific group of people targeting one or more populations of one or more whale species at a specific time and place. In some of the quoted literature, the older term—*fishery*—may still be used. When discussing whaling, these terms should be considered interchangeable, the preceding fish vs. mammal arguments notwithstanding.

Biologically speaking, the order *Cetacea* is closest to—or should be nested within—the order *Artiodactyla*, the even-toed ungulates. The closest living relative within that order is the hippopotamus (Lindberg and Pyenson 2006). Skeletal evidence found in most living cetaceans (e.g. vestigial pelvic bones and intra-flipper skeletal digits) points to whales' land-dwelling ancestry. Our oldest fossil examples of cetacean ancestors date to about 55 million years ago. These ancestral cetaceans were terrestrial quadrupeds that later developed a semi-aquatic lifestyle and then moved completely into a marine habitat. The most obvious anatomical change that accompanied this transition is the transformation of the nostrils into a blowhole and their migration to the posterior of the head. The entire move from land to sea was quite rapid, taking less than 10 million years (Lindberg and Pyenson 2006).

The next major change for whale evolution occurred with the split into the two suborders of cetaceans that we know today: *Mysticeti* (baleen whales) and *Odontoceti* (toothed whales). These two types are distinguishable in fossils from the early Oligocene, about 33 million years ago, however, the skull and tooth structure of neither type greatly resembles that of its modern descendant. Many cetacean fossils from this time period cannot be definitively classified as either truly toothed or truly baleen (Lindberg and Pyenson 2006). It was not until the mid- to late-Miocene, 5-14 million years ago, that cetacean diversity approaching the modern level arose. During this period, *Delphinidae*, the family to which pilot whales, killer whales, and all species of dolphin belong, established itself distinct from other branches of cetacean evolution. In the remainder of this section, I shall focus upon *Delphinidae* since it is the family of the majority of species that this dissertation discusses.

For an animal family as well represented in popular culture as the dolphins, it is surprising to read an assessment of how little is understood about its "evolution, physiology, ecology, behavior and population structure" (LeDuc 2008, 298). The family consists of seventeen genera and thirty-three species (Nowak and Walker 2003), making it the most speciose family of marine mammals (LeDuc 2008). Common anatomical characteristics to members of this family include streamlined, spindle-shaped bodies, single blowholes, and usually a prominent dorsal fin. Delphinid species vary widely in body size—smaller species attain lengths of just over 1 meter (3 feet) while the killer whale (*Orcinus orca*) can grow up to 10 meters (33 feet) in length (Tinkler 1988; Nowak and Walker 2003)—and in the number and shape of the teeth. Dolphins are fast and agile swimmers, known to breach frequently. Pilot whales, like other dolphins, normally surface to breath several times per minute, but have been observed making deep dives over 20 minutes in duration (Nawojchik and Aubin 2003 [cited in Bloch et al. 2003]; Soto et al. 2008). Another notable characteristic of this family is the ability to echolocate, or detect objects based upon the reflection of emitted sound waves, usually in the form of clicks or whistles. This ability has only been recognized in cetaceans since 1958, starting with the bottlenose dolphin (*Tursiops spp.*) (Nowak and Walker 2003). All of these characteristics are thought to reflect the range of ecological niches occupied by the various members of this family, especially with regard to prey preference and predator avoidance (LeDuc 2008).

Within the family *Delphinidae*, the genus *Globicephala* is comprised of two species: *G. melas*, and *G. macrorhynchus*, the long-finned and short-finned pilot whales, respectively. These are the primary targets of the two whaling cultures discussed in this dissertation: long-finned pilot whales in the Faroe Islands and short-finned pilot whales in the Caribbean.

<u>Pilot Whale Biology, Behavior, and Habitat</u>

The most obvious physical characteristics of pilot whales are their jet-black skin and bulbous foreheads (Figure 2.1 and Figure 2.2). These features have inspired some of the local names given to the whales: *blackfish* in the Caribbean and along the New England coast, and *potheads* in Newfoundland.

Other local names include the Faroese *grindahvalur* (GRIN-dev-hall-er), which is often shortened to *grind* (pronounced almost exactly as the English word *grinned*, not with a long *i* sound as in the English verb *to grind*). Arriving at a literal translation of this local name is problematic; in common usage the word simply means "pilot whale." According to Kate Sanderson (1995), this term is related to the Norse word *grind*, meaning *gate*, and is likely derived either from the behavior of the whales when schooling, or their propensity to be driven *en masse* by whalers. Similar to the second possible Faroese explanation, the Shetland Islanders, who hunted the long-finned pilot whale until the early twentieth century, called it the *caa'ing* whale, (or *caaing* without the apostrophe as Henderson [1945] makes explicit), from the Shetlandic dialect *to ca*, or *to call*, meaning *to drive*, a reference to the common method of capture by driving (Sandison 1896; Thynne 1916; Fenton 1978; Smith 1993; Sanderson 1992, 1995; Smith 2003). This is the method of capture still used in the Faroe Islands today in the event known in Faroese as the *grindadráp* (GRIN-da-drop)—literally the *pilot whale slaughter*.

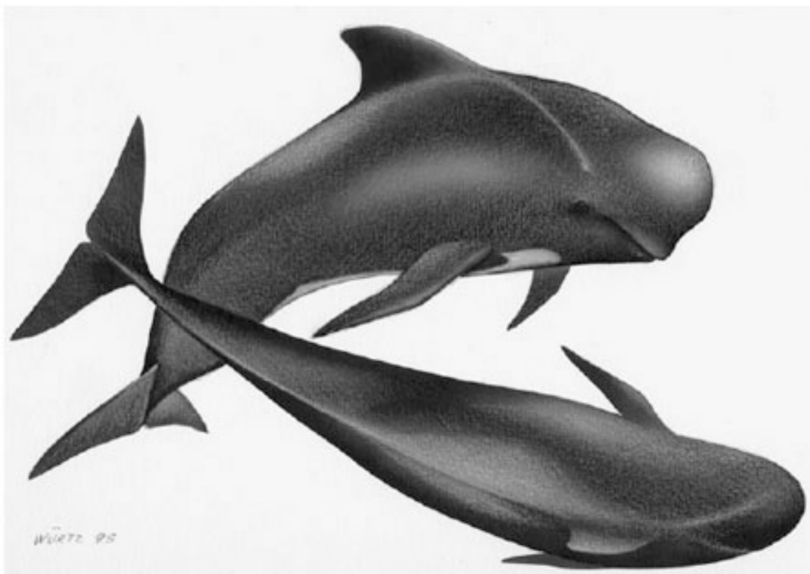


Figure 2.1: Short-finned pilot whales. Image © M.Würtz—www.artescienza.org. Used by permission.

Figure 2.2: Long-finned pilot whales. Image © M.Würtz—www.artescienza.org. Used by permission.

The long-finned pilot whale attains a larger maximum size than the short-finned. Both feature gray markings on the dorsal and ventral areas. There are morphological differences between the two species, the most obvious of which is the eponymous fin-length—eighteen to thirty percent of the body length in long-finned pilot whales, but only fourteen to nineteen percent in short-finned pilot whales (Bloch et al. 1993). The species also differ in skull shape and number of teeth (Culik 2004). While individual whales of the two species may be difficult to distinguish, the need rarely arises because they inhabit nearly separate ranges. Long-finned pilot whales are found in both north and south subpolar and temperate regions, including the Mediterranean. The northern and southern populations are designated as separate subspecies: *G. melas melas* and *G. melas edwardii*, respectively (Culik 2004). Short-finned pilot whales inhabit temperate and tropical seas worldwide. The ranges of the two species rarely overlap, except in the temperate North Atlantic, off the west coast of South America, and along a line roughly between 30-40˚ S latitude (Figure 2.3). Together, the two species of pilot whale inhabit all but the most polar of the earth's seas.

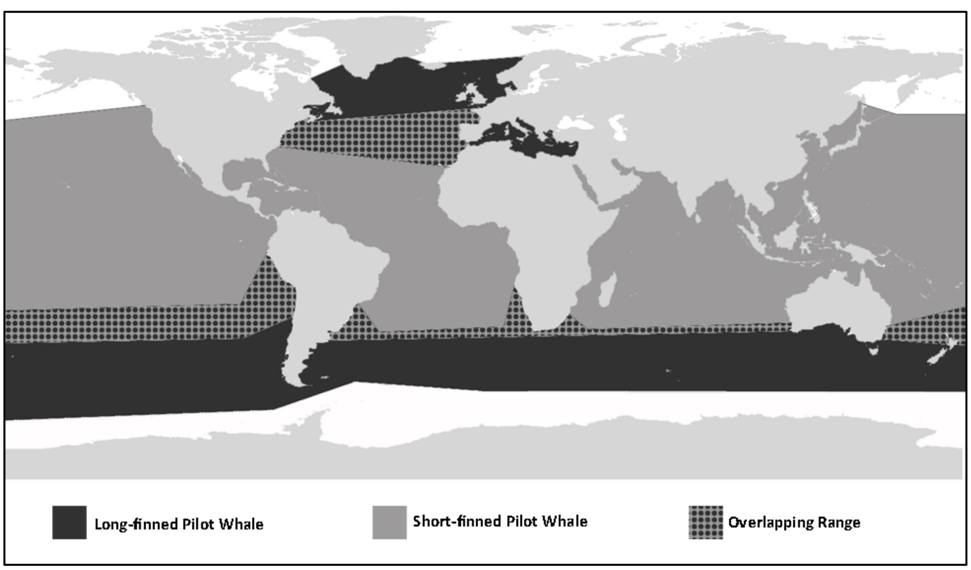


Figure 2.3: Map showing the range of each species of pilot whale. Data source: Culik 2004.

Pilot whales and killer whales are outliers to the range of normal body sizes in the family *Delphinidae*. This difference in body size is likely related to diet. Killer whales are known to feed on other, larger whales. Their body size and behavioral tendency to carry out cooperative hunting strategies contribute to this ability. For a long time it was unknown why pilot whales—cephalapod feeders—would have developed large body sizes as well (though, not as large as killer whales). Recent work in the Canary Islands indicates that short-finned pilot whales have the ability to make very fast sprints, deep underwater, earning them the moniker, "cheetahs of the deep" (de Soto, et al. 2008). Similar research has found deep diving behavior in long-finned pilot whales as well (Heide-Jørgensen et al. 2002; Bloch et al. 2003). These diving sprints involve high levels of oxygen consumption and energy expenditure and would only evolve to become part of an animal's optimal foraging strategy if the caloric payoff of the prey was commensurate. This logic, along with observations of freshly severed pieces of giant squid (*Architeuthis dux*) floating in the vicinity of diving pilot whales, indicates that pilot whales join the other large genera of *Delphinidae* in the capacity to feed upon large prey—killer whales upon whales and pilot whales upon giant squid. However, both killer whales and pilot whales ordinarily feed upon smaller prey: small squid and fish.

Pilot whale movements over time are linked to the movements of their prey but it is not accurate to say that pilot whales are migratory in the same sense as other whales, which feed at high latitudes and travel great distances to give birth in warm waters. Results from experiments using satellite-linked radio transmitter tags show that long-finned pilot whales from populations in the eastern and western North Atlantic do not mix (Bloch et al. 2003; Mate et al. 2005). While the whales do not make large-scale seasonal migrations, they do travel a great deal in the shorter term and on a smaller geographical scale.

Pilot whales move in two general ways: inshore/offshore and vertically. Both movements are determined by prey availability. Inshore/offshore movements follow the spawning season of squid, though some individual whales remain either inshore or offshore year-round. For the whales that do move seasonally, they generally follow the squid inshore during summer and autumn and offshore during winter and spring (Bernard and Reilly 1999). Vertical movement in the form of deep dives beyond the photic zone (relying upon echolocation to find their prey) has been recorded in both species of pilot whale (Bloch et al. 2003; Soto et al. 2008).

In the Faroe Islands, a positive correlation has been found between warm surface water temperatures and increased availability of squid. This in turn draws pilot whales (Abend and Smith 1999). Similarly, pilot whales in the Caribbean follow an inshore/offshore pattern throughout the year with occasional jaunts following warm water incursions that attract squid with them (Culik 2004). However both species tend to prefer deeper water and the transition zones at the edges of continental or insular shelves. One research team found that short-finned pilot whales in the Gulf of Mexico preferred water depths of 600-1,000 meters (1,969-3281 feet) (Davis et al. 1998 [cited in Culik 2004]).

In short, both species of pilot whale are found where their prey is in abundance. Long-finned pilot whales near the Faroes feed primarily upon two squid species found there: European flying squid (*Todarodes sagittatus*) and boreoatlantic armhook squid (*Gonatus fabricii*). Of these, *Gonatus* is the more abundant but *Todarodes* is the whales' preferred prey, based upon analyses of stomach contents (Zumholz and Frandsen 2006; Abend and Smith 1999). Short-finned pilot whales in the Caribbean feed primarily upon glass squid of various species (*Cranchia scabra* and *Megalocranchia spp.*). All species of squid that are prey for pilot whales feed primarily upon juvenile small bony fish (e.g. Atlantic herring) as juveniles (Quetglas et al. 1999) and upon small crustaceans such as copepods as adults (Kristensen 1984). Juvenile Atlantic herring and other similar fish feed on zooplankton, krill, fish larvae, and copepods (NMFS 2009). Squid also feed on copepods directly. Copepods can be either parasitic or free-swimming. The free-swimming variety is easier prey for squid and feeds primarily upon bacteria, diatoms, or other unicellular forms (Museum Victoria 2009).

Any natural or human-induced destruction or degradation of the habitat required by any of these prey species, or by the whales themselves, could affect the presence of pilot whales in that area. A recent study of marine mammal habitats in the United States listed the following threats that result from human activity:

> …coastal development, destruction of bottom communities by fishing gear, loss of prey to fisheries, creation of anoxic conditions (e.g. dead zones)…, and loss of sea ice habitat caused by global warming. (Ragen 2005, 125)

The author goes on to list human activities that may degrade, rather than destroy outright, marine mammal habitat. These include:

> …introduction of contaminants and pathogens…, stimulation of harmful algal blooms…, oil spills, and increased human-generated noise associated with shipping, use of sonar systems, and seismic research and exploration. (Ragen 2005, 125)

Additionally, marine mammals experience negative effects from fisheries, either through bycatch (i.e. being inadvertently captured and then discarded, usually dead) (Read 2005; Plagánye and Butterworth 2005), or through intentional culling, owing to perceived competition for fish between fishermen and marine mammals (Gerber et al. 2003).

Of course, marine mammals are also targeted directly by humans. Whaling's destructive potential upon a pilot whale population was seen in Newfoundland during the mid-twentieth century (Mitchell 1975; Dickinson and Sanger 2005; Fielding 2009). This scenario of direct overextraction is unlikely to replay itself in the Faroe Islands or St. Vincent for reasons that shall be discussed below. However, pilot whale populations in both of these areas could be at risk from any number of the above-mentioned indirect threats to their habitat.

Pilot whales are not migratory, and consequently marine biologists measure populations of both the long-finned and short-finned species regionally, rather than worldwide (Culik 2004). Two of the more reliable and widely used methods for estimating cetacean populations and ranges are to use the records of past or present whaling operations (Maury 1852; Tillman and Donovan 1983; Baker and Clapham 2004; Smith and Reeves 2005) and to conduct shipboard or aerial sightings surveys (Lockyer and Brown 1981; Hammond 2001; Breiwick and York 2008; See Roman and Palumbi 2003, Palumbi and Roman 2006, and Jackson et al. 2008, for discussion of another promising method—DNA analysis).

Culik (2004) cites population estimates for the short-finned pilot whale throughout several regions of the Pacific but does not offer an estimate for pilot whales in the Caribbean. Addressing this gap in the data, Randall Reeves (2005, 5), chair of the cetacean specialist group at the International Union for the Conservation of Nature (IUCN), notes that in the Caribbean region, "whaling results and sightings surveys are generally lacking, and therefore little is known about the occurrence, distribution and relative abundance of these species." This dissertation contributes toward filling this gap by providing a review of past whaling activities as well as an estimate for current whaling pressure on stocks of certain cetacean species that occur off St. Vincent.

Estimates for long-finned pilot whale populations in the North Atlantic are better understood than those of the short-finned pilot whales in the tropical Atlantic. Based upon sighting surveys, it is estimated that there are 780,000 pilot whales in the Eastern North Atlantic. Of these, 100,000 are resident in the waters immediately around the Faroe Islands (Buckland et al. 1993; NAMMCO 1997 [both cited in Culik 2004]).

Other Species Relevant to this Study

In both field sites for this study, the pilot whale is the primary—but not the only—species hunted. In the Faroe Islands, Atlantic whitesided dolphins (*Lagenorhynchus acutus*), bottlenose dolphins (*Tursiops truncatus*), white-beaked dolphins (*Lagenorhynchus albirostris*), and harbour porpoises (*Phocoena phocaena*) are also hunted. Northern bottlenose whales (*Hyperoodon ampullatus*) are not actively hunted but are used for food when they strand ashore. From St. Vincent, in addition to pilot whales, killer whales, spinner dolphins (*Stenella longirostris*), Atlantic spotted dolphins (*Stenella frontalis*), and several other small cetacean species are also hunted. The pursuit of small cetaceans by Faroese and Vincentian whalers today is the remnant of a much larger—both geographically and historically—interaction between humans and whales that has been played out in every ocean on earth and traces its history back beyond the written record (Reeves and Smith 2006).

Whaling

Whaling and Human Emotion

To witness the capture and slaughter of a large mammal is a disturbing experience to many people. Whaling, to the foreign observer, can be visually unnerving. To kill a whale is to shed an enormous amount of blood. M.J. Michelet (1861, 229), in his broad treatise on the sea, informed his readers that "the Whale, when wounded, ensanguines the ocean to a great distance; the blood that we have in drops, is lavished upon him in torrents." While this voluminous and quick bloodshed can also be seen as an indicator of a quick death for the whale, it often serves to empower anti-whaling activists by providing a subject for films and photographs that will engender shock and disgust in their audience (for an analysis of these media, see Sanderson 1990 and 1994). The incongruous and unexpected sight of a harbor or seascape reddened by the blood of whales is often the photographic subject of advertisements calling for action against whaling nations. "If only the blood was blue…" the Faroese Minister of Fisheries, Bjørn Kalsø, thought aloud during my 2005 interview with him.

At the same time, for many people within a whaling culture, the death of a whale signifies the beginning of a time of plenty. Some celebrate, some become rich, many lend a hand to assist in the labor, and nearly all know that they will eat well. In the two whaling cultures that I examine in this study, there is little community ambivalence regarding the morality of whaling.

It is with humble understanding of the variety of intense human emotions that can be stirred during a fair and objective discussion of whaling that I begin this dissertation. Finn Lynge (1990), the Greenlandic sociologist and policy-maker, advised against attempting to minimize the emotional element of the whaling debate and instead advocated its analytical embrace. I open with much the same sentiment as Ernest Hemingway (1932, 1) began his masterpiece on bullfighting, *Death in the Afternoon*:

> I suppose, from a modern moral point of view, that is, a Christian point of view, the whole bullfight is indefensible; there is certainly much cruelty, there is always danger, either sought or unlooked for, and there is always death, and I should not try to defend it now, only to tell honestly the things I have found true about it. To do this I must be altogether frank, or try to be, and if those who read this decide with disgust that it is written by some one who lacks their, the readers', fineness of feeling I can only plead that this may be true. But whoever reads this can only truly make such a judgment when he, or she, has seen the things that are spoken of and knows truly what their reactions would be.

I have seen the things of which I speak, and I offer my reaction, my analysis, and as thoroughly as possible, my compilation and critique of the associated literature. I do not set out to argue for the justness or unjustness of whaling in the Faroe Islands and St. Vincent; rather, as an academic geographer, my goal is to understand this intriguing interaction between humans and the natural environment.

Hemingway's subject, the *corrida de toros*, or Spanish bullfight, is technically a method of food production, for after the bull is killed in the fight, it is butchered and the meat is sold (Greenfield 1961; Marvin 1994). Even on rare occasions when the bull, through its own bravery, intelligence, skill, or luck, survives the bullfight, its final destination is still the abattoir, for after the ability of a bull to draw crowds into the *plazas de toros* has diminished, it is still valuable as a source of meat (Hemingway 1932). The value of the meat, however, is minor compared with the "pedigree that produces fighting ability, a value that disappears as soon as the bull dies" (Marvin 1994, 34).

Donald Kyle (1998), in his discussion of ancient Roman "spectacles of death", stated that the government officials who presided over the events gave the animals killed in gladiatorial combat to the people of Rome for meat, often for political gain. However, it is the spectacle itself that is the primary purpose for the bullfight, the gladiatorial combat, or any of a number of types of entertainment in which an animal dies (e.g. big game trophy hunting, cockfighting, dog fighting, and prairie-dog shooting) whether the activity results in food production or not. In the bullfight, the cockfight, and in gladiatorial games that pit human combatants against wild animals, the production of meat could have been accomplished more simply, with less risk to the human participants, and with a quicker, more humane death to the animal if meat production had been the primary goal.

Conversely, whaling, especially as it is practiced in the Faroe Islands and St. Vincent today, is primarily a method of food production (Jacobsen and Stove 1944 [cited in Joensen 2009]). While it certainly involves much community celebration and enjoyment and has become ingrained in the cultures deeply enough to lend the practices strong resilience in the face of international protest and during a time of cessation of whaling activities by other nations, its core purpose—its only true purpose—is to produce food for the local communities, despite claims of "bloodsport" made by some anti-whaling activists (for examples, see Sanderson 1990; 1994). It was for food that humans first took to the seas in pursuit of whales and it is for food that the activity continues today.

<u>Whaling History</u>

The use of marine mammals by prehistoric *Homo sapiens* (Lee and Robineau 2004) and even by *Homo neanderthalensis* (Stringer et al. 2008), is thought to have primarily involved stranded whales and dolphins rather than the directed hunting strategies that are the subject of the present research (Nansen 1911; Sauer 1968; Hacquebord 1990). However, the importance of stranded whales to the subsistence of ancient peoples, especially in the north, should not be underestimated. As an example from the North Atlantic, Rosenblad and Sigurðardóttir-Rosenblad (1993, 352) cite the following lines from the Icelandic Egil's Saga:

> There was plenty of everything…
> Whales often got stranded.

Additionally, there is the linguistic evidence of the oft-cited Icelandic word *hvalreki*, which literally means *stranded whale* but in modern Icelandic usage carries the meaning of *jackpot* or *godsend* (Brydon 1992).

Active whaling operations, as opposed to the harvesting of stranded cetaceans, originated independently in several locations worldwide and cannot be said to have a single point of origin. The earliest whaling appears to have been conducted at several locations in the Arctic, although the degree to which these distinct operations were connected by cultural and technological exchange is unknown (McCartney 1984; Stoker and Krupnik 1993 [both cited in Reeves and Smith 2006]; Weihe 2009).

Whales have provided many useful products for people. Meat, blubber, skin, and some organs can be consumed either cooked or uncooked. Generally, food products derived from whales are high in vitamins, fatty acids, marine oils, and protein (Freeman 1998; Nestle 1999). However, as marine pollution increases throughout the world's oceans and concentrations of various toxins in whale tissue increase accordingly, the health benefits of a diet that includes whale products begin to be outweighed by the risks (Simmonds and Johnston 1994; Weihe and Joensen 2008).

Historically, the most valuable non-food whale product has been oil. The blubber—and to a lesser extent, the muscle and bone—produces oil when heated (Tønnessen and Johnsen 1982). Whale oil has been used in a variety of industries including lubrication, lighting, tanning, textiles, linoleum, paint, steel, and the production of various household products including soap and margarine (Tønnessen and Johnsen 1982; Parr 1996). In some places such as St. Vincent, whale oil is taken orally or applied to the skin as a medicine.

Other whale products include baleen, also called whalebone, formerly used as a structural component for clothing and umbrellas; ambergris, a waxy substance secreted in the digestive tracts of sperm whales, used in the manufacture of fragrances during the eighteenth and nineteenth centuries (Rice 2008; see also Melville 1851, 354ff); and ivory (tooth or bone), the basis of whaling's most unique art form, scrimshaw (Frank 2008). Meat and bone were also ground into animal feed and fertilizer (Dickinson and Sanger 2005; Shoemaker 2005). Aboriginal whalers have been known to tan cetaceans' hides for leather (Reeves 2008), to make thread from the sinews (Reeves 2008), to use the teeth for ceremonial purposes (Arno 2005; Takekawa 1996b), and to use the mandibles or ribs of large whales in the construction of buildings (Kalman 1994).

The Basques are often credited as being first to hunt whales, beginning no later than AD 1059 (Sauer 1968; Clapham and Link 2006; Reeves and Smith 2006). This status is problematic since the Norse, the Japanese, and aboriginal peoples throughout the circumpolar Arctic were whaling much earlier (Nansen 1911; Sauer 1968; Hacquebord 1990; Reeves and Smith 2006; Szabo 2008). There is also some evidence of Anglo-Saxon and Norman whaling, possibly as early as the seventh and tenth centuries, respectively (Musset 1964; Herman and Dobney 2004; for an alternate interpretation of Herman and Dobney's evidence, which dates whaling in Great Britain to the tenth or eleventh century instead, see Gardiner 1997). The difference is that whaling was conducted by all of these peoples for subsistence or small profits, while Basque whaling quickly became an international business (Sauer 1968).

The Basques, while not the first whalers, did begin whaling independently and were certainly the first to build a whaling industry, the first to commercialize whaling, and the first to travel far from home in pursuit of the whale (Hacquebord 1990). Whaling was well established commercially in the Basque region by the thirteenth century as evidenced by the laws governing the activity and by the prominence of whales and whaling-related motifs on several municipal seals used in Basque towns during the thirteenth and fourteenth centuries (Sauer

1968). Additionally, it is the Basque whaling technique that has had most influenced other whaling operations around the world.

The technique used by Basque-style whalers was to set out in a large "mother ship" with smaller open boats onboard. When the lookout sighted a whale, the captain would call for the boats to be lowered for the impending pursuit. Under oar-power, the crew of the small boats approached the whale close enough for the harpooner to strike. The harpoon was never intended to kill the whale, nor was it capable of doing so. Instead the purpose was to make the whale fast to the boat so that when it tired it could be lanced (often after dragging the boat crew on a fast and dangerous "Nantucket sleigh ride," as it would later be called). The crew would tow the dead whale to the mother ship where other crewmembers would remove the blubber (in a process known as *flensing*, from the Danish *flense*, meaning "to strip blubber" [Weekley 1967, 575]) to be processed. The original Basque whalers also processed the whales for their meat but many other Basque-style whalers were only interested in the blubber, which would be processed into whale oil. In settings where whales would often approach within sight of land, the Basque—and Basque-influenced—whalers erected "shore stations" that took the place of the mother ship. In whaling history, this method is usually called "shore whaling" (Reeves and Smith 2006).

Beginning in the mid-seventeenth century, American whalers adapted and expanded upon Basque whaling techniques. Owing to the innovations that the American whalers made to the Basque techniques, Reeves and Smith (2006) differentiate between the Basque and American "eras" of whaling. Put simply, Basque whaling spread to North America, was adopted, adapted, and became American whaling, which diffused further—as far afield as the mid-Atlantic, the South Pacific, and the West Indies.

During the eighteenth and nineteenth centuries, commercial whaling grew with English, Dutch, German, American, French, Danish, Norwegian, Japanese, and Russian whaling ships plying the seas from the Arctic to the Antarctic (Hacquebord 1990; Reeves and Smith 2006). The whaling industry was certainly one of "the world's most spatially extensive form[s] of exploitation of wild living resources" (Reeves and Smith 2006, 82). The industry experienced an oft-repeated scenario: whalers would deplete the population of their target species in one area and then either move to another area or shift to another species, often employing new technology in either case (Hacquebord 1990; Gambell 1993). The departure of foreign whalers from a region often left open a niche for local whalers to pursue whatever remnant of cetacean populations remained, using the techniques they had learned through association with the foreign whalers, usually for local subsistence rather than on an industrial scale. Current or planned whaling operations that occur today in Equatorial Guinea (Aguilar 1985), Tonga (Keller 1982), the Philippines (Dolar et al. 1994), and the Caribbean (Romero and Cresswell 2005)—including St. Vincent (Adams 1971)—trace their histories to the influence of foreign whalers in the nineteenth century (Reeves 2002).

The other method of whaling that is of primary interest to this research is known as *drive-style whaling*. This technique involves forcing a whale or a group of whales into a net or a shallow bay, or onto the shore where it/they can be killed. Drive-style whaling usually involves several boats working cooperatively and often employs sound—produced through such diverse methods as banging rocks just underwater, blowing trumpets, shouting, and slapping the hulls of the boats—to keep the whales swimming in the desired direction (Brownell et al. 2008). Just as with whaling in general, there is no clear single point of origin for the diffusion of drive-style whaling. Rather, it appears to have arisen independently in several locations and among various peoples. Drive-style whaling is also recorded as having been developed by the Basques (Jenkins 1921; Graham 1956), various North Atlantic peoples (Hacquebord 1990; Sanderson 1992), aboriginal inhabitants of the Arctic (McGhee 1974; Lucier and Vanstone 1995; Freeman n.d.), many Japanese villages (Mitchell 1975; Brownell 2008, and references therein), and various peoples of the tropical Pacific (Peale 1848 [cited in Brownell 2008], Hedley 1896; Handy 1923; Grimble 1952; Zabilka 1959; Dawbin 1966; Emory 1975; Lavondès 1979; Watson 1981; Takekawa 1996a, 1996b; Cawthorn 1997; Miller 2007).

From these points of origin, drive-style whaling spread to many locations, especially throughout the North Atlantic. One of the earliest first-hand references to whaling in the North Atlantic was a ninth century communiqué to King Alfred of England, which records Norse whaling (Vaughan 1982). Scholars generally agree that the method employed was that of drive-style whaling (Hacquebord 1990; Szabo 2008). The Faroese researcher Arne Thorsteinsson (1986, 66 [cited and translated in Sanderson 1992, 24]), in a paper entitled *Hvussu Gamalt er Grindadrápið?* ("How Old is the Pilot Whale Slaughter?"), states that drive-style whaling "is part of the common Norse culture which the first settlers brought with them to the Faroes."

Although whale driving has arisen independently in diverse regions, the practice is most pervasive in the North Atlantic. Records exist of whale and dolphin drives occurring in Ireland (Ó Criomhthain 1937; O'Riordan 1975), the Scottish Hebrides (Fenton 1978); the Orkney Islands (Tudor 1883), the Shetland Islands (Sandison 1896; Fenton 1978; Smith 2003); Denmark (Mitchell 1975; Kinze 1995 [cited in Brownell 2008]); Norway (Mitchell 1975; Anderson 1991 [cited in Sanderson 1992]); Sweden (Strubberg 1936; Svanberg 2005 [both cited in Joensen 2009]); the Faroe Islands (Joensen 1976, 2009; Sanderson 1992; Bloch 2007), Iceland (Mitchell 1975; Einarsson 1987 [cited in Sanderson 1992]), Greenland (Freeman 1998, n.d.), Newfoundland (Power 1994; Dickinson and Sanger 2005; Martin 2006; Fielding 2009), and in the United States at Maine (Morris 1916), Massachusetts (Thoreau 1908; Mitchell 1975), New Jersey (Mitchell 1975), and North Carolina (True 1885; Mitchell 1975). Among the countries and sub-national jurisdictions on the rim of the North Atlantic, from the United Kingdom to the United States, more have driven whales than have not (Figure 2.4).

Figure 2.4: Map showing countries where drive-style whaling has been practiced in black. Note: The United Kingdom, Canada, and the United States are divided into their constituent parts because whale driving has only been practiced in certain jurisdictions of these confederations.

During the latter half of the twentieth century, whaling became the controversial environmental issue that it remains today. One of the major claims of anti-whaling activists is that overhunting during the era of commercial whaling has led to a decline in whale populations. This is rarely disputed. In the words of one historian, writing about Antarctic whaling but applicable to industrial whaling worldwide, "man killed without any regard to the consequences for the animal or the future of the whaling industry" (Hacquebord 1990, 17). As a result of this rampant overextraction of the resource, most whaling activities worldwide have ceased. Those that continue whaling today, whether commercially such as Japan, Norway, and

Iceland, or artisanally such as St. Vincent and the Faroe Islands, do so in spite of protest, to varying degrees, and while implementing methods of conservation, also to varying degrees. The next subsections will cover the history of conflict over whaling and attempts at resolution through conservation.

Whale Conservation

Conflict

As the Norwegian anthropologist Arne Kalland (2009) points out, environmental disasters have occurred since antiquity but the development of an environmental movement first arose in response to the rapid industrialization and subsequent environmental degradation of nineteenth century Europe and North America (see also Benton 1996). Such is also the case with the anti-whaling movement, which arose only after whaling became industrial, and in some ways shares characteristics with other environmental movements.

Public attitudes regarding how best—and indeed, whether—to protect whale populations have shifted with public perception of whales in general. In the earliest recorded interactions between humans and whales, the primary human emotion felt upon encountering a whale was fear. Examples abound of whales as creatures of which humans were afraid. Ancient maps and Portolan charts show whales, dragons, and sea monsters—all equally terrifying—inhabiting unknown seas (Figure 2.5, see also Ellis 2008; Aguirre et al. 2009). The same Hebrew word (תנין – *tanniyn*) is in various versions of the Bible translated *whale*, *dragon*, *serpent*, or *sea monster*. The ancient world seems not to have distinguished much between whales and monsters.

Figure 2.5: Detail from the 1539 chart, *Carta Marina* by Olaus Magnus, showing a monstrous female whale (labeled "BALENA") nursing a calf and an orca (labeled "ORCHA"). Source: Kejlbo 1996, 19. Used by permission.

The first century Roman naturalist, Pliny the Elder, in his *Naturalis Historia*, describes an orca that had stranded alive in Ostia harbor (at the mouth of the Tiber). The whale, "whose appearance can only be described as a huge mass of flesh with fearsome teeth" was put to death with spears by a cohort of soldiers led personally by Emperor Claudius (Pliny AD 79 [1991]). The whole event, according to Pliny, was conducted as a spectacle for the Roman people gathered along the shoreline.

At the beginning of the era of industrial whaling, when it would seem that men had proven their superiority over whales, the object of the whalers' pursuit was still often viewed with fear. Accounts of whales attacking ships, such as the 1820 *Wreck of the Whaleship Essex* (Chase 1821) were widely read among whalers and non-whalers alike. This story particularly served as a narrative model for Melville's *Moby Dick* (1851), another masterpiece in the "whales to be feared" genre (Davey 2003).

Even after whales ceased to be feared outright, news of their purposeless killing was received without public outcry. In a twentieth century parallel to Pliny's account of Roman soldiers killing the stranded orca for show, the shooting of a pod of over 100 orcas for target practice by members of the U.S. Air Force stationed in Iceland was described unproblematically in a late 1950s *Time* magazine article. *Time* received no disapproving letters in response to this article, which referred to the whales as "savage sea cannibals up to 30 feet long with teeth like bayonets"—a characterization not significantly different from Pliny's description—and described the killing in detail (Day 1987, 5 [cited in Epstein 2008, 89]).

As a final example of the changing public perception of whales, an incomplete article from the early 1960s on file at the Kingstown Public Library in St. Vincent begins, "To any tourist who would like to try his hand at harpooning a small whale off the coast of St. Vincent, this article may be of special interest…" The transition from popular articles about shooting orcas for target practice to Hollywood films such as *Free Willy*, and from tourists harpooning whales to tourists watching whales was remarkably quick.

Day (1987) and Epstein (2008) date the beginning of the transition to 1964—the year that a captive orca was first put on public display. Interestingly, this particular orca—captured off Saturna Island in British Columbia and named *Moby Doll*—was intended to be killed and used to create a life-size sculpture. However when the whale survived the harpooning, several shots from a rifle, and the 16-hour tow to Vancouver, veterinarians decided to try to save it. The whale survived in captivity for three months, during which time it provided scientists with a subject for research and became something of an international celebrity. After Moby Doll's death, the *Times* of London ran an especially prescient obituary for the whale, which stated, "the widespread publicity—some of it the first positive press ever about killer whales—marked the beginning of an important change in the public attitude toward the species" (PBS 1997). People began to understand more about whales and, at the same time, began to question the rightness of whaling.

In the latter half of the twentieth century, anti-whaling discourse took two major forms: ecological and ethical (Kalland 1993b). The ecological argument calls for the cessation or limitation of whaling activities because of the endangered status of targeted whale species or the disruption of marine ecosystems that could result from the removal of large numbers of whales. It is primarily concerned with the effects of human activity upon animal populations and environmental systems. The ethical argument states that it is morally wrong to kill whales, either due to the immorality of killing all animals, or because of special rights ascribed to whales in particular (Kalland 1994a). Its main concern is with the effects of human activity upon individual whales.

While declining whale populations had been a known fact to whalers for centuries, it was seen primarily as a localized problem. When whales became scarce in one region or ocean basin, whalers would move to another (Hacquebord 1990; Gambell 1993). By the 1930s, when whalers were concentrating their efforts in the Southern Ocean—the last untapped whaling grounds on earth—it became clear to scientists that the populations of certain species, especially the blue and humpback whales, were in danger of commercial—if not actual—extinction (Simon 1965). Still, whale conservation had not yet entered the public conscious and the anti-whaling movement had not yet begun.

Stoett (1997, 3-4) places the beginnings of the anti-whaling movement in its historical environmental context in the late 1960s and early 1970s:

> The Cold War… threatened us with nuclear annihilation. The population explosion was becoming a common theme, provoking fears of global collapse and mass migration. We were becoming aware of the rapid loss of soil… and tropical rainforest. Oil spills were front page news. And the whales were dying.

This association of whaling with other environmental problems is characteristic of the ecological argument against whaling. It is based upon scientific knowledge of cetacean populations and recovery rates. Scientific facts do not enter public discourse without interpretation, of course. As Kalland (1993b, 1994a) points out, one of the most common misapplications of science to the whaling debate is the incorrect assumption that *all* whale species are endangered. In fact, cetacean populations exhibit a wide range of abundance from the *baiji*, or Yangtze river-dolphin, "the rarest and most endangered cetacean in the world" (Culik 2004, 142) which may now indeed be extinct (Turvey et al. 2007), to the minke whale—the "most abundant of all baleen whales" (Jefferson et al. 1993, 59). A respectable ecological argument against whaling must take into account the nuanced science of whale population analysis.

The relevance of the ecological argument against whaling rises and falls in negative correlation with whale populations. The former director of the Cetacean Society International, an anti-whaling organization, acknowledged this dependence and makes the case for another argument to be considered:

> If harvesting whales is acceptable, there can be little doubt now that at least some species of whales in the future can sustain a limited, strictly regulated take, without threatening species survival. So therefore the argument against killing whales can no longer be based on preventing extinction. A different rationale is required. (Barstow 1990 [cited in Blichfield 1994, 12])

For most anti-whaling activists, the “different rationale” takes the form of the ethical argument against whaling. In Charlotte Epstein’s (2008, 96) analysis, showing the role of “principled beliefs” (which she juxtaposes against “scientific knowledge”) in the construction of the ethical argument against whaling, whales are portrayed as “magnificent” and “mysterious,” the majority of humans do not wish to kill them, and those who do are the “deceitful, ruthless… evil” Other.

Some ethicists have argued that all animals, including whales, possess rights that would preclude their being killed in all but extreme cases (e.g. Singer 1976; Regan 1984). Proponents of the ethical argument have also singled out whaling in particular from among other forms of killing animals (Regan 1982; D’Amato and Chopra 1991). Examples of ethical arguments against whaling range from the scientifically informed—statements about the prolonged time-to-death involved in some whaling methods (Singer 1978; WDCS 2008), or the superior intelligence and familial bonding of certain whale species (Brakes et al. 2004; Simmonds 2006), or the effects of whaling upon the whaler’s psyche (White 2009)—to the clearly uninformed. Sanderson provided several examples of protest letters, which the Faroese government received during the 1980s. The content of several of these letters lies at the “uninformed” end of the spectrum of ethical arguments. One such letter reads:

> Dear Sir,
> The Slaughter in the Faroes of the dolphins and whales is causing untold damage to the ozone layer. The special sound the dolphins and whales emit holds the ozone layer together. It is of the utmost importance to stop this terrible slaughtering of these wonderful creatures, so many of which are far more evolved than man. They wish you no harm—why kill them for so-called “sport.” Nature will rebel. Have you any children? Do you wish them to survive in the future world?
> Yours faithfully, Mrs. D.B.
> P.S. The dolphins are the guardians of this planet. (Sanderson 1990, 199)

Conflict over whaling has been played out in a variety of ways. Anti-whaling activities range from the civil and benign letter-writing campaigns (Sanderson 1992) and tourism or export-product boycotts (Wilson 1996; Kerins 2008) to more direct documentary or interventionary methods (Day 1987; Weyler 2004; Heller 2007) and even sabotage and sinking of whaling ships (Derr and McNamara 2003).

Anti-whaling

The scientific and public concern about whaling—both for ecological and ethical reasons—spurred the establishment of formal conservation measures to protect whale species and to promote humane killing methods. Because many whale species migrate great distances and were often hunted in international waters, these conservation measures, by necessity, have taken the form of international treaties and conventions.

The first attempt at international regulation of whaling was the Convention for the Regulation of Whaling, in 1931 (Gambell 1993). This convention, which became effective in 1935, sought to regulate all whaling operations targeting baleen whales, whether in national or international waters. The specific restrictions of the convention were meant to protect whales of endangered species and nursing females with their calves. Aboriginal subsistence whaling was recognized as unique and was given special exemptions. The signatory nations held additional conferences in 1937, 1938, 1944, and 1945 to draft new agreements, each time updating the guidelines to protect the still-declining whale populations.

In 1946, whaling nations met at another conference, then called the International Convention for the Regulation of Whaling (Gambell 1993). This meeting created the International Whaling Commission (IWC)—the first and only worldwide regulatory body for whaling. The fifteen original signatory states—Argentina, Australia, Brazil, Canada, Chile, Denmark, France, the Netherlands, New Zealand, Norway, Peru, South Africa, the UK, the USA, and the USSR—either were at the time, or had been, countries with significant whaling interests (IWC 2010a).

The goal of the establishment of the Commission was to protect whale populations. However the purpose behind this goal was decidedly pro-whaling. The convention text calls whale stocks "great natural resources" and states that "increases in the size of whale stocks will permit increases in the number of whales which may be captured" (ICRW 1946, 1). The text did not offer a definition of the term *whale* but did state its purpose in "protecting all whale species" (ICRW 1946, 1). An appendix to the convention text included a list of the thirteen "Great Whales" (Table 1.1)—the twelve species of baleen whales and the sperm whale; these came to be known as the "IWC whales" or "IWC species." It has been generally accepted that it is only the catch of these whales over which the IWC has regulatory authority (IWC 2010b).

Despite the science-based quota system that the IWC initiated, by the late 1970s it became clear that much was still unknown about the populations of commercially hunted whale species. Population surveys returned wildly varying data from year to year, and quotas were adjusted accordingly (Gambell 1993). At this time of increasing worldwide environmental consciousness, the unknown quantity of whale populations disturbed many. Beginning in 1972, non-whaling nations started joining the IWC, "apparently for the specific purpose of changing the balance of votes and thus to institute a moratorium policy" (Scheiber 1998). This apparent goal was met in 1982, when the IWC passed a resolution that, beginning in 1986, reduced the annual quota for commercial operations targeting all whale species to zero, so that scientists could conduct a "comprehensive assessment of whale stocks" (Gambell 1993, 101). At the end

Table 2.1: List of species known as "The Great Whales" which includes the twelve species of baleen whales plus the sperm whale. Source: International Whaling Commission 2010b.

Common name (English)	Scientific Name
Blue whale	*Balaenoptera musculus*
Bowhead (or Greenland right) whale	*Balaena mysticetus*
Bryde's whale	*Balaenoptera edeni*
Fin whale	*Balaenoptera physalus*
Gray whale	*Eschrichtius robustus*
Humpback whale	*Megaptera novaeangliae*
Minke whale, Antarctic	*Balaenoptera bonaerensis*
Minke whale, common	*Balaenoptera acutorostrata*
Right whale, North Atlantic	*Eubalaena glacialis*
Right whale, North Pacific	*Eubalaena japonica*
Right whale, Southern	*Eubalaena australis*
Sei whale	*Balaenoptera borealis*
Sperm whale	*Physeter macrocephalus*

of this assessment period, the IWC was to consider establishing new catch limits. However what was originally intended to be a temporary pause in whaling activities has continued to be upheld by annual vote; the zero-quota is still in place.

Part of the reason that the 1986 moratorium is still in effect today is that IWC membership has become more precautionary, more environmentally conscious, and less advocating of whaling. The current IWC membership roster contains the names of many countries that have never whaled and even eight landlocked countries (IWC 2010c). Per IWC regulations, each member state has an equal vote, regardless of its population, seniority, or interest in whaling (IWC 2010d). The Commission has shifted in its philosophical framework from conservation to preservation. Under the new philosophy of the IWC, "the burden of proof has been moved to those who wish to utilize the resource to demonstrate that any resumption of whaling will not be harmful" (Gambell 1993, 106).

Whaling Today

With the moratorium on commercial whaling still in effect, whaling occurs today in three ways: the hunt of IWC whales under exceptions to the moratorium, the hunt of IWC whales in protest—or outside the jurisdiction—of the IWC, and the hunt of non-IWC whales. Each will be discussed below.

Two exceptions exist to the IWC moratorium. The first of these is aboriginal subsistence whaling. According to the Commission's website,

> Since its inception, the IWC has recognised that aboriginal subsistence whaling is of a different nature to commercial whaling… Under current IWC regulations, aboriginal subsistence whaling is permitted for Denmark (Greenland, fin and minke whales), the Russian Federation (Siberia, gray and bowhead whales), St. Vincent and the Grenadines (Bequia, humpback whales) and the USA (Alaska, bowhead and gray whales). (IWC 2009a)

It should be noted that the inclusion of St. Vincent and the Grenadines in the list of authorized aboriginal subsistence whaling nations is intended to include only the whalers on the island of Bequia who hunt humpback whales. While there are certainly relationships and connections between the hunt for humpbacks by Bequia whalers and the hunt for pilot whales by St. Vincent islanders, the IWC treats these two instances of whaling as fundamentally separate, owing to the difference in target species of the two operations.

There has been much debate in the academic literature about what criteria should be used to determine when a community qualifies for aboriginal subsistence status (IWC 1982; Moeren 1992; Gambell 1993; Kalland 1994b; Reeves 2002). Certainly the process by which communities receive permission to whale for aboriginal subsistence purposes by the IWC should continue to be reexamined. However, because the communities upon which this study focuses do not whale by aboriginal subsistence permission, an in-depth examination of this exception to the moratorium would be misplaced in this dissertation.

Scientific whaling is the second exception to the IWC moratorium. Under a scientific whaling permit, IWC whales may be subject to "lethal research methods" (IWC 2009c). Since the 1986 moratorium, the IWC has issued scientific whaling permits to three member states: Japan, Norway, and Iceland. Only Japan conducts scientific whaling of IWC whales today. Critics of scientific whaling claim that the permits serve only to provide a front of legitimacy to otherwise outright violation of the moratorium and that little scientific discovery has resulted from the permits issued to date (e.g. Abdulla 1995; Brownell et al. 2000; Gales et al. 2005). In contrast to the criticism of Japan's "scientific whaling" operation by scientists, there are scientific and legal supporters both in and outside of Japan (e.g. Aron 2001; Morishita 2006). Again, however, the communities that are the focus of this dissertation do not engage in scientific whaling of IWC whales, though Faroese research has contributed much to our knowledge of the long-finned pilot whale, a non-IWC whale species (Bloch et al. 1990a; Desportes 1990; Donovan et al. 1993). Additionally, the IWC has requested that the Fisheries Division in St. Vincent and the Grenadines assist in collecting data on all humpback whales taken in the aboriginal whaling operation on Bequia (Appendix C).

Operations targeting IWC whales can also be conducted by IWC signatory states that have lodged formal protests against the moratorium. The only contemporary example of this type of whaling is Norway. The final way in which IWC whales are hunted today is whaling by non-IWC member states. Indonesia and the Philippines, which have never joined the IWC, currently host whaling operations that target IWC whales. Additionally, Canada and Iceland conduct aboriginal and commercial whaling, respectively, after having left the IWC.

Finally, and of immediate relevance to the research presented here, IWC member states do not generally recognize the Commission's authority to regulate the use or conservation of cetaceans not included in the list of IWC whales given above in Table 2.1. These non-IWC whales are collectively termed *small cetaceans*. While some legal experts and environmental organizations argue that the IWC is competent to regulate small cetaceans (Gillespie 2001; Elliott et al. 2009), the current IWC framework defers all relevant conservation and exploitation decisions to national or sub-national governments. While the IWC studies these decisions and their effects, small cetacean operations are not currently subject to the Commission's oversight or regulation. Some researchers, including those at the IWC itself, have called for the establishment of an international regulatory body for small cetaceans, either as part of the IWC or as a separate entity (IWC 1977; Andresen 1993). Others favor the expansion and empowerment of existing regional conservation treaty organizations to oversee the use of small cetaceans (Caron 1995; Hoel 1993).

The lack of a global international management body for small cetaceans has led one environmental organization to collectively call these species "the forgotten whales" (Elliot et al. 2009). The category of small cetaceans does include all species of dolphins and porpoises but should not be seen as inclusive only of cetaceans physically smaller than the IWC whales. As Gillespie (2001, 259-260) points out, "the IWC has the authority to regulate minke whales which are deemed 'large', but which are physically smaller… than Baird's beaked whales, which are deemed 'small'."

The IWC scientific committee maintains a subcommittee on small cetaceans, which continually monitors developments in their study, but the Commission maintains no control over their exploitation. Regulations regarding the conservation and/or exploitation of small cetaceans are completely within the jurisdiction of the national governments of the IWC member states or the various regional regulatory bodies. One of these regional bodies, the *Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas* defines the term *small cetaceans* as "any species, subspecies or population of toothed whales *Odontoceti*, except the Sperm whale *Physeter macrocephalus*" (cited in Gillespie 2001, 261)—a fitting and succinct definition to which I shall adhere in this dissertation.

Community-based whaling operations with long histories using traditional hunting methods, but that do not fit within the IWC category of aboriginal subsistence whalers, or that target only cetaceans of non-IWC species are often referred to as "artisanal" whalers (Freeman 1993b; Kalland 1993a; Reeves 2002; Culik 2004; Kerins 2008). Reeves (2002, 99) defines "artisanal whaling" as being

> …characterized by localized family-based operations, conducted with a substantial investment of manual labour and involving traditional skills and techniques. Products are generally consumed at the household or village level, with surpluses sold in local or regional markets.

Based on this definition, the "artisanal" label is appropriate for the whaling operations in the areas upon which this dissertation focuses, as will be shown.

The lack of an international regulatory body has complicated efforts to compile a global tally of all artisanal whaling operations targeting small cetaceans today. Those tallies that do exist have relied primarily upon published and unpublished reports of case studies (e.g. Mitchell 1975; Northridge and Pilleri 1986; Robards and Reeves *in press*).

CHAPTER 3: THEORETICAL FRAMEWORK

Whales, Whaling, and Geography

In her discussion of the value of whales and whaling to medieval societies in the North Atlantic, historian Vicki Szabo (2008, 4-5) acknowledged that whales were neither “a mainstay of medieval diets,” nor were they “central within medieval thought.” “Rather,” she continues, “[whales] were secondary resources, but resources nonetheless.” A similar moderation of importance could be applied to the place of whaling as a subject of scholarly investigation within academic geography. Geographers have indeed studied whaling (e.g. Adams 1971; Ross 1971; Sanger 1991; Barton 2001; Johnson 2001; Dickinson and Sanger 2005; Bravo 2006; Sakakibara 2008; 2009; 2010), though, to borrow Szabo’s phraseology, the topic has hardly been central within geographical thought. However, geographers have long been concerned with the broad subject most central to the study of whaling: interactions between human societies and the natural environment.

The nuanced interplay between humans and the environment has required a multifaceted geographical approach and could be credited with playing a causal role in the breadth of scope for which the field of geography is well known. Three of the major ways in which geographers have sought to better comprehend human-environmental interactions are by studying the depletion and conservation of natural resources, nature’s symbolic representation and cultural value to human societies, and the social construction of nature. These three themes have been central to the current study and their theoretical underpinnings shall be discussed in this chapter. Following this thematic discussion, examples of research specifically related to the subject matter and field sites of this study are presented and discussed.

Human Agency and Resource Depletion

The capability of human societies to alter their natural environments through the extraction of natural resources has long been understood (Sauer 1938; 1956; Glacken 1967). Often, unrestrained resource extraction has led to environmental degradation through the exhaustion of resources, among which living plants and animals are especially vulnerable (Mangel et al. 1996). Of specific import to the current study are the significant effects of commercial fishing and whaling upon not only the targeted faunal populations, but upon the marine natural environment as a global system (Marsh 1864; Graham 1956; Hilborn 1991; Ellis 2003). The exhaustion of fish populations from the world's oceans has occurred both historically (Jackson et al. 2001) and in recent decades (Botsford et al. 1997; FAO 2007). One rationalization for unchecked extractive natural resource use, in general, has been the perceived inexhaustibility of whatever resource was being used. Perhaps in no other specific case has this belief been shown to be fallacious than through fisheries. For example, biologist Thomas Huxley (1885, para. 35) made the infamous remark in his address to the 1883 London Fisheries Exhibition that,

> …the cod fishery, the herring fishery, the pilchard fishery, the mackerel fishery, and probably all the great sea fisheries, are inexhaustible; that is to say, that nothing we do seriously affects the number of the fish. And any attempt to regulate these fisheries seems consequently, from the nature of the case, to be useless.

There was a time when the doctrine of inexhaustibility was also applied to whales (Starbuck 1878; Starks 1922; Bekoff 2008). History has shown that, to the contrary, in both the cases of fishing and whaling, human activities have had significant effects on animal populations and the natural environment more generally. The reduction in the number of fish, whales, and other aquatic animals, both directly through fishing and whaling and indirectly through habitat degradation has been an ongoing theme throughout environmental literature (Marsh 1885; Graham 1956; Glacken 1967; Hilborn 1991; Ellis 2003).

In the depletion of marine natural resources and its direct link to unsustainably extractive human activities, we have a clear example of mankind's capacity to transform the natural environment of the earth—significantly and, perhaps, irrevocably. This acknowledgement of "human agency" (Sauer 1956) necessitates as a basic premise the concept of a fundamental separation of that which is "human" from that which is "natural." This strict dichotomy is no longer a basic assumption made by geographers, however its role in the creation of a conservation ethic has been instrumental.

A Conservation Imperative

Within the human/nature paradigm, it has been repeatedly shown through numerous and widely diverse case studies that human impact upon the natural environment can lead to extreme environmental degradation (Marsh 1864; Thomas 1956; Turner et al. 1990). These phenomena are not new; human agency has been shown to have been altering the natural environment for millennia (Glacken 1967; White 1967). Logically, this knowledge of power suggests a certain responsibility. If we humans are capable of such destruction, then we are also capable of—and obligated to—some form of environmental protection and restoration.

Historically, there has been much debate over the optimal way to protect the natural environment. In the United States, an environmental movement arose in earnest during the late nineteenth century, during which Americans, informed by the writings of George Perkins Marsh, Henry David Thoreau, John James Audubon, and others, became more aware of the need for the protection of the environment and its natural resources (Grove 1996; McManus 2000; Shabecoff 2003). Whether it was best to protect the natural environment through *conservation* or through *preservation* became a contested issue. These two different perspectives would be pitted against one another in a struggle to become the dominant theme within the American environmental movement.

Conservation, according to one of its early champions, Gifford Pinchot (1910, 79-81), is described as a "practical common-sense management" strategy based upon "prudence and foresight," which "holds that it is about as important to see that the people in general get the benefit of our natural resources as to see that there shall be natural resources left" for future generations to use. It is an environmental ethic that recognizes the utility of natural resources to human society and assumes the ability of current generations to use restraint in their exploitation of these resources so that future generations will not be faced with shortages.

Preservation, by comparison, emphasizes the intrinsic value of "wilderness" and calls for a "land ethic," which, according to Aldo Leopold (1966, 239), expands the "community" of concern to include not only current and future generations of humans, but also "soils, waters, plants, and animals, or collectively: the land." An earlier, and more terracentric preservationist ethic was promoted by John Muir, who viewed human benefit from natural resources as secondary to the importance of preserving of natural landscapes for the sake of their inherent beauty. Muir (1901, 370) advocated the establishment of national parks, which would be preserved in their "natural condition" and all extractive resource use banned within. He believed that the public would agree with his ethic, if only they were exposed to the natural environments he sought to protect. Muir (1896, 282-283) had previously written that, "if people in general could be got into the woods, even for once, to hear the trees speak for themselves, all difficulties in the way of forest preservation would vanish."

The doctrines of conservation and preservation, personified by Pinchot and Muir, came into direct conflict with the 1906 proposal and eventual construction of the O'Shaughnessy Dam on the Tuolumne River, designed to create a major water supply for San Francisco (Richardson 1959; Oravec 1984; Righter 2005). Muir opposed the construction of the dam on the grounds that it would destroy the natural beauty of the Hetch Hetchy Valley. Pinchot supported the dam as necessary to meet the needs of the rapidly increasing population of San Francisco. After much public and political debate, the dam was constructed in December, 1913. John Muir died one year later, his preservationist ethic having failed to attain the national prominence he felt it deserved (Worster 2008).

Most historical analyses conclude that conservation—a lesser threat to the nation's economic interests—bested preservation to become the predominant environmental ethic of the United States (e.g. McManus 2000; Miller 2001; Black and Lybecker 2008). However, the preservationist approach endures in certain contexts such as the establishment and expansion of national parks, the "deep ecology" movement (Naess 1973), and, of particular concern to the current study, in the regulation of human interaction with marine mammals, which, both in the United States law and international treaty, follows a predominately preservationist management agenda (Gambell 1993; Marine Mammal Commission 2007). Within public and legal perception, then, it appears that whales require a modified approach, a more careful form of protection, than do other elements of the natural environment. Whether whales require this special approach because of their special needs, or because of their special qualities is not entirely clear.

Cultural Keystones and Totemic Species

Ecologists have long understood that some species are of greater importance to the functioning of total ecosystems than their biomass or abundance would otherwise indicate (Paine 1966, 1969, 1995; Mills et al. 1993; Vogt et al. 1997; Piraino and Fanelli 1999). These disproportionately important species are known as *keystone species*, a term coined by the ecologist Robert T. Paine and first used to describe the important role of the purple ochre sea star (*Pisaster ochraceus*) in the ecosystems of the Pacific Northwest of the United States. Since Paine's original naming of a keystone species, dozens more have been identified by scientists working in a variety of ecosystem types (e.g. Estes et al. 1978; Smith et al. 1991; Creed 2000; Willson and Halupka 2002).

In recent years, social scientists have applied the concept of keystone species to contexts in which one species is given special status within the mythos of a particular culture. A Culturally Defined Keystone Species (CKS)—according to Sergio Cristancho and Joanne Vining (2004, 155), the environmental scientists who coined the term—is defined as a species of plant or animal "whose existence and symbolic value are essential to the stability of a cultural group over time." Often owing to the practical and subsistence importance, these species become "embedded in a people's cultural traditions and narratives, their ceremonies, dances, songs, and discourse" (Garibaldi and Turner 2004, 1). It follows from these criteria that the removal of the CKS would "entail significant cultural disruptions" (Cristancho and Vining 2004, 155) for the cultural group that values the species.

Similar to the CKS is the concept of *totemic species*. A totemic species is a certain animal (or occasionally plant) species held in special reverence or given a status approaching kinship by certain population groups (Freud 1919; Lévi-Strauss 1963; Douglas 1966; Simoons

1994; Durkheim 2001; Sakakibara 2009). Some species are chosen as totems and to eat them is forbidden (e.g. Akimichi 1992; Alvard 2003), while others seem to have been established as totems expressly because of their value to the population as a food source (e.g. Frazer 1910; Skinner 1915; Berndt et al. 1993). Whether the totemic species is eaten or not, it is always given a higher status than other species within the mythology and culture of the population group. Among groups that do eat animals or plants of their totemic species, there are often special rules regarding the preparation, consumption, and especially the disposal of uneaten remains of totemic animals.

The Norwegian anthropologist Arne Kalland (1993a; 1994a; 2009) has applied this concept in his analysis of the international environmental movement that began in the latter half of the twentieth century. Through this framework, Kalland sought to explain the primarily emotional, yet verging on the deeply spiritual, attachment of humans to whales and other "charismatic megafauna" such as elephants and dolphins (see Freeman and Kreuter 1994; Barney et al. 2005). According to Kalland, anti-whaling discourse has largely succeeded in the establishment of whales as totemic species within Western popular thought (see also Hamazaki and Tanno 2002).

By combining positively regarded characteristics of a number of whale species, anti-whaling apologists have created, in Kalland's (1993a; 1994a) words, a "super-whale," a non-existent animal that combines superlative attributes of several cetacean species and comes to represent "Whale" in the imagination and discourse of the public. Thus, while the blue whale is the largest animal ever to live, the sperm whale has the largest brain, the humpback whale is known for its melodious calls, the bottlenose dolphin and gray whales are perceived as "friendly," and the bowhead and blue whales are endangered, the imaginary "super-whale" is constructed to feature all of these qualities. Kalland, in essence, accuses anti-whaling activists of campaigning for the protection of a chimeric animal that does not exist.

The attributes of the "super-whale" are selected to appeal to human emotion and to gain support for the protection of a variety of cetacean species. Similarly, Stokes (2007) showed how specific physical characteristics of certain animals can influence the level at which they endear themselves to humans and can have profound implications for the gaining of public support for their conservation. Kalland (1993a) cites the eminent French anthropologist Claude Lévi-Strauss (1966, 37) on totemic species: "The beings which native thought endows with significance are seen as exhibiting a certain affinity with man." The whale, or, as Kalland makes clear, the "super-whale," exhibits this affinity with man because of its assemblage of characteristics, socially constructed to meet human preferences for traits actually found spread throughout several different species of cetacean. As Stokes made clear, species that have endeared themselves to humans stand a better chance of being protected. Thus the distribution of endearing characteristics of several species among all cetaceans, has profound implications for the protection of all whales and dolphins.

The Social Construction of Nature

This idea that human preferences and social constructs can strongly influence the conservation, exploitation, or indeed the survival of animal species points to another approach to the question of human-environmental interactions, which is to ask whether there ought to be such a strict dichotomy between human society and the natural world at all (Castree and Braun 2001; Hinchliffe 2007). Alternatively, Noel Castree (2001a) suggests that nature is actually a social construct and that it does not—or, can no longer—exist apart from human society. Though the concept has primarily been applied to terrestrial environments, geographers S.E. Jackson (1995) and Philip Steinberg (2001) have extended the idea of the social construction to marine environments as well. The present research expands upon this application, showing that the sea—and the state of its ecology—can be constructed by social discourse toward a variety of politically infused outcomes.

Social theorists (e.g. Derrida 2002) have questioned the strict division between humans and other "nonhuman animals" (Emel and Wolch 1998, 2; Anderson 1998, 31), but the concept behind the social production of nature is that all of nature and human society are so intertwined that one cannot simply ask how one affects the other independently. Rather, according to this theory, each constructs the other (Hinchliffe 2007). Societies may construct different natures for different purposes using different discourses (Demeritt 2001), and according to social nature theory, both the producers and the products should be included in an analysis of their interactions.

Certainly the inclusion of nonhuman animals within realms of study that had been previously populated only by humans is a form—and a critique—of the theory of socially constructed natures (Ingold 1990; Mullin 1999; Whatmore 1999). That is, the breakdown of the division between humans and non-human animals is based upon the perspective that the division was socially-constructed to begin with, yet levies criticism against the theory by imbuing the actors formerly on the non-human side of the division with their own agency, thus reducing the uniqueness of humans as constructive agents. The criticism levied by animal geographers is that the socially constructed dichotomy between humans and animals (part of the larger dichotomy between humans and the natural world) is vague at best, misrepresentative of reality at worst. Indeed, some researchers have portrayed the human-nature dichotomy as a holdover from the time of teleology based science, the history of which

Glacken (1967) discussed, but which has been largely rejected by scholars for nearly a century (Bain 1928 [cited in Emel and Wolch 1999]).

What is suggested by recent social and geographical theory in place of a strict dichotomization of the human and natural (including animal) worlds is an acknowledgement that the two are dependent upon one another for their existence and conceptualization. This body of literature began in earnest in the mid-1990s (Wolch and Emel 1995a), though Fudge (2006) has shown the concept's deeper historical roots. Hinchliffe (2007) conceived of nature as a partner to human society but suggested that there is no clear delineation between the two; therefore it would be fruitless to speak of one without the other. The practical implications of this emerging approach are unclear. Certainly one can deny any actual distinction between human society and the natural environment, thus echoing Noel Castree's (2001a, 12) conclusion that "there is, therefore, no objective, nondiscursive way of comprehending nature [per se]."

Conservation Geography

A more practical application of the theory of social nature may be to follow Mark Bonta's call to wholly integrate the study of cultural geography into conservation-based research. Bonta (2003, 3) describes his "conservation geography" as a "geographical approach to conservation that cuts across artificial boundaries separating what is 'natural' from what is 'cultural' in the landscape." In so doing, conservation geographers include the needs of the human inhabitants of a place along with the needs of the natural environment in their plans for environmental protection.

The inclusion of the needs of indigenous human societies within the design of conservation strategies has become increasingly popular during the past two decades (Stevens

1997; Zimmerer and Young 1998a; Zimmerer 2006). However this new inclusive focus is based upon a foundational concept in American cultural geography—the idea of a "cultural landscape" that includes not only the soils, hydrology, flora, and fauna that are normally associated with the "natural environment," but also the presence, history, culture, and agency of a place's human inhabitants (Sauer 1925).

Conservation geography goes beyond the mere inclusion of the needs of indigenous peoples into conservation strategies, however, by allowing the knowledge compiled within these cultures to inform and instruct the actual conservation plans that are implemented (see Freeman 1992; Folke 2004). Bonta (2003, 3) suggests "that we analyze and appreciate local conservation knowledge and practice before attempting to impose new beliefs and new techniques." By following this advice, conservation geographers recognize indigenous people as colleagues, not merely as constituent parts of the landscape, or worse, as their adversaries in the struggle to protect a particular place, species, or resource. Cultures with long histories of natural resource use and subsistence have often had to adapt to a variety of changing environmental conditions throughout their histories (Denevan 1983; Hansis 1984; Hardesty 1986). By recognizing the hard-won lessons that these cultural adaptations have produced, conservation geographers can gain access to a wealth of traditional knowledge about the local and regional ecologies—knowledge that can support and inform the empirical knowledge gained through more scientific methods.

Traditional ecological knowledge (TEK) can be seen as more holistic, systems-based, and multidimensional than the more linear, empirical, reductionist sciences typically referred to as "Western." The majority of TEK literature upholds this dichotomy between Western science—the provenance of biologists, chemists, physicists, and some geographers—and TEK, which is almost exclusively thought of as residing within "tradition-based, non-industrial societies" (Freeman 1992, 9). These "two parallel modes of acquiring knowledge" (Lévi-Strauss 1966, 13) are generally represented as just that: parallel, therefore, not intersecting. The stated goal of much of the literature reflecting upon the importance of TEK is to integrate the "two modes" by empowering the holders of TEK and bringing them into the processes of planning, conducting, and analyzing the data from, research (see Freeman 1992; Berkes et al. 2000; Usher 2000). While this dichotomy may often be accurate, and its associated prescription prudent in many cases, it is also the case that both TEK and Western science can exist within the same society, indeed within the same individual. Nor is TEK always absent from the collective knowledge of societies that are more apt to be characterized as modern, Western, and industrial. The Faroe Islands presents a salient example of a society that integrates empirical science with its own longstanding, culturally embedded ecological knowledge to inform its decisions regarding the use and conservation of its available natural resources.

In practice, however, scientific findings and TEK are both often overridden by real world situations, which must be negotiated. In their frequently-cited political ecology text, *Land Degradation and Society*, Piers Blaikie and Harold Brookfield (1986) show that empowered local actors at times make survival-strategy decisions that are at odds with principles of ecological sustainability (and their own local ecological knowledge) in response to social and political pressures that have limited their choices of action. Similarly, Bonta (2003, 4) argues that the "true culprit" in many cases of environmental degradation is "not the slash-and-burn farmer [but] a complex web of worsening economic and political conditions." To understand the choices that local people make regarding activities that protect or degrade the natural environment, one must take into account not only cultural and local economic factors, but larger political and economic forces as well. Only when a researcher has gained an understanding of the interplay of these multi-scalar and contradictory forces, can he or she begin to make recommendations for ecologically and culturally sustainable strategies.

To attempt to create conservation strategies for populated areas or in areas of high resource productivity without examining both the broader political-economic situation and the traditional conservation practices already in place within the culture of the local inhabitants would be to ignore potentially invaluable sources of geographical knowledge. Writing within a cultural ecology framework, which will be addressed below, Karl Butzer (1989, 203) pointed out decades ago that, "Westerners should first learn from indigenous groups before prescribing change." Butzer explains that traditional agricultural systems benefit from generations of evaluation and connection to the local environment, and that any outside attempts to improve these systems will be hindered by their comparative lack of local environmental expertise.

Often this traditional knowledge is not overtly recognizable as conservationist. Rather, profound conservationist principles can lie hidden within traditional cultural practices—the ecological implications of which may remain obscured even to those indigenous people who adhere to them most strictly. Stan Stevens (1997, 2) writes of

> …patterns of resource use and resource management that reflect intimate knowledge of local geography and ecosystems and contribute to the conservation of biodiversity through such practices as protecting particular areas and species as sacred, developing land use regulations and customs that limit and disperse the impacts of subsistence resource use, and partitioning the use of particular territories between communities, groups, and households.

It is important to note, from Stevens' example as well as others, that the practices ingrained into the cultural traditions of an indigenous group may be represented as religious ("areas and species as sacred"), customary ("customs that limit… impacts"), or organizational ("partitioning the use of particular territories"), but often are not presented as overtly ecological. While anthropologists once believed that "ritual actions do not produce a practical result on the external world" (Homans 1941, 172 [cited in Rappaport 1967, 17]), subsequent generations of ethnographical, ecological, and geographical study have amassed countless examples of ritualized cultural traditions producing "practical results" in the form of environmental conservation (see Colding and Folke 2001). Carl Sauer (1956, 68) recognized the intrinsic and practical value of understanding these "wise and durable native systems of dealing with the land." Sauer's observations, in the words of geographer Clark Monson (2004, 5), "helped spawn an intellectual renaissance among geographers and anthropologists in re-examining and revitalizing indigenous environmental knowledge".

This "renaissance" has continued to produce studies that examine the value of ritual, cultural traditions, and TEK to policies of resource conservation. Within marine environments, the majority of these studies have been based within the Pacific basin, as evidenced by the 2007 UNESCO compendium on the subject (Haggan et al. 2007), as well as myriad case studies conducted by geographers and anthropologists (e.g. Rappaport 1967; Johannes 1978; Lessa 1983; Barnes 1996; Thomas 2002; Aswani and Hamilton 2004; Monson 2004). Within the Atlantic, and specifically the two regions upon which this research focuses—the Caribbean and the North Atlantic—fewer related studies exist. Recent notable exceptions include Kevin St. Martin (2001) and Ted Ames (2007) in New England, Paul Macnab (2002) and Susan E. Gass and Martin Willison (2005) in Atlantic Canada, Gísli Pálsson (2000) in Iceland, Sandra Grant and Fikret Berkes (2007) in Grenada, and Fikret Berkes' (1999) series of short case studies from throughout the insular Caribbean. To discover these culturally embedded conservation strategies, an outside researcher must employ the methods of the ethnographer, the cultural geographer, and the anthropologist, in addition to becoming well-versed in the science of the ecologist, the forester, the oceanographer, or the biologist.

"The Tools of Geographers"

In 1964, John E. Adams, then a graduate student in geography, made his first visit to St. Vincent and the Grenadines to investigate the local whaling industry. His tools were the "time-honored ones of geographers in the field: notebook, camera, and map" (Adams 1994, 65). Adams succeeded in producing the first study of artisanal Caribbean whaling within academic geography (1970) and continued to write on the subject throughout his career (1971; 1973; 1975; 1985; 1994). During Adams' lifetime, however, the "toolset" available to geographers has expanded dramatically.

Of vital recent importance among geographers' technical repertoire is Geographical Information Systems (GIS). However, although geographers using GIS have found a most valuable tool in the analysis of ecological situations (Lang 1992; Convis 2001; Breman 2002), geographical contributions to conservation issues go much further and have a much deeper history. While the current project does rely upon GIS for the production, analysis, and interpretation of spatial data, it makes more foundational use of cultural and political ecology, complementary tools of great importance to any geographer interested in conservation.

According to Karl Butzer (1990, 686), "cultural ecologists are… concerned with the role of people and the manipulation of resources within ecosystems." Cultural ecology's greatest strength lies in its ability to examine the intrinsic and often sophisticated linkages between the cultures of indigenous populations and their local environments. Cultural ecology sets a fitting foundation for conservation geography by acknowledging the "unified framework" in which "society and nature are seen as intimately interconnected, bound by complex systemic interrelationships" (Butzer 1989, 193). However, when the fact that communities are not "closed, homeostatic systems" (Peet and Watts 1996, 4-5) comes to light, the analyses employed by strict cultural ecologists show less potency. Political ecology carries the concept beyond the confines of a single cultural group. By looking at ways in which local communities are integrated into larger political and economic systems, issues of human-environmental interactions can be examined at a higher degree of spatial and organizational scale (see Zimmerer and Bassett 2003).

Both cultural and political ecology have been primarily interested with strategies of food production (Butzer 1989), since this represents one of the preeminent interactions of human society with the natural environment. In the current research, food production is the primary motivator for both Vincentian and Faroese whaling activities.

Humans as Hunters

By extracting living marine resources for food from open-access systems, fishermen and artisanal whalers exhibit some characteristics of classically defined hunter-gatherers. As recently as the late 1960s, researchers could say that sixty percent of all human males who have ever lived have been hunters (Lee and DeVore 1968). Despite this historical majority, contemporary societies for whom hunting (along with gathering) is an important method of food production are now dwindling to the point of extinction. Those hunter-gatherer societies that remain often comprise marginal classes within their larger national state.

Part of the justification for this marginalization has been the assumption that the life of a member of a hunter-gatherer society is not a life of very much quality, anyway. The seventeenth century English political philosopher Thomas Hobbes (1651 [1904], 84) characterized life "in the state of nature," not only as lacking an understanding of geography and history ("no Knowledge of the face of the Earth, no account of Time…"), but also as famously "solitary, poore, nasty, brutish, and short." Such description has been applied to pre-agricultural peoples consistently since Hobbes, though anthropologists regularly cite examples of members of hunter-gatherer societies enjoying long, rewarding lives, filled with time for rest and leisure (e.g. Lee 1968; Sahlins 1968; Rowley-Conwy 2001; For the view that Hobbes' famous assessment was never intended to apply to his contemporary hunter-gatherer societies, see Barnard 2004).

The presence of whaling in the Faroe Islands and St. Vincent, and the reliance upon whale meat and blubber as significant portions of the diet in both locations does not classify the Faroese and the Vincentians as hunter-gatherers, despite their relevance to the hunter-gatherer literature (e.g. High North Alliance 1997; Jákupsson 2002; Joensen 2002; Olsen-Aaju 2002). Both societies take part in international industrial food networks and, as island nations often do, rely heavily upon imported foodstuffs. However, with opportunities for agriculture and livestock-raising limited by the physical geography of both locations and the high cost of imports, the Faroese and Vincentians have turned to innovative uses of what natural resources do exist locally, looking mainly to the sea. In doing so, these societies have retained traditions that others have abandoned. Each site could arguably be described as a hybrid geography—a blurring of the boundary between industrialist and hunter-gatherer, between traditional and modern, between local and global (Bhaba 1994; Whatmore 2002; Kwan 2004).

Island and Maritime Geographies

That these places of hybrid geography are found primarily on islands where artisanal whaling coexists with ties to global-industrial food networks should come as no surprise. The emergent field of nissology, or island studies, teaches us that islands often serve as places of preservation. From biogeography we learn of insular relict species, extinct elsewhere but surviving on islands (Wallace 1880; Whittaker and Fernández-Palacios 2007; Cheke and Hume 2008); from linguistics, we have examples of islands serving as the last repositories for languages and dialects now dead continentally (e.g. Wolff 1967; Matasović 2007) and from cultural geography we know of islands preserving cultural heritage and traditions no longer practiced on the mainland (e.g. Robertson 1982; Royle 2003).

Geographers and other scholars have long recognized the importance of islands (MacArthur and Wilson 1967; Simberloff and Wilson 1969; Amaral 1984; King 1993; Royle 2001; Péron 2004; Baldacchino 2006b; van Duzer 2006; Funk 2009). Among scholarly writers, the first to recognize the uniqueness and value of islands for their work were the biogeographers of the nineteenth century, of whom Darwin and Wallace are deservedly the most famous. Both wrote canonical works on the divergent evolution of various plant and animal species found on islands (Darwin 1859; Wallace 1880). Each independently concluded that the separateness of the species due to the insularity of their habitats had influenced their evolution toward specific adaptations. It was not long before human geographers began to postulate that the same effects might be seen in human societies.

Jean Brunhes and Ellen Churchill Semple were among the first to write of the way in which an island was thought to affect its inhabitants. Brunhes (1910) addressed human societies that develop on several types of “islands” including the desert oasis and the remote mountaintop but curiously did not address actual water-bound islands of the sea. Semple relied heavily upon the work of Friedrich Ratzel (1901), who was, himself, a devotee of island biogeography—a concept that is central to his idea of *Lebensraum*.

Semple's book, though criticized (Sauer 1925) along with the principle of Lebensraum in general (Ó Tuathail 1996; Wood 2001), shows an intriguing picture of geographical thought of her time. The chapter titled "Island Peoples," (Semple 1911, 172) gives hundreds of examples from around the world of how islands affect their inhabitants, and summarizes thus:

> Small, naturally defined areas, whether their boundaries are drawn by mountains, sea, or by both, always harbor small but markedly individual peoples, as also peculiar or endemic animal forms, whose differentiation varies with the degree of isolation. Such peoples can be found over and over again on islands, peninsulas, confined mountain valleys, or desert-rimmed oases.

Islands continue to be used as naturally bounded laboratories for various kinds of research. Their value to science has been explained by Russell King (1993, 13):

> For geographers, anthropologists, ecologists and biologists, islands hold a particular attraction, functioning as small-scale spatial laboratories where theories can be tested and processes observed in the setting of a semi-closed system.

King echoes the words of Alfred Russel Wallace (1880, 241) who wrote a century earlier that,

> …islands possess many advantages for the study of the laws and phenomena of distribution. As compared with continents they have a restricted area and definite boundaries, and in most cases their biological and geographical boundaries coincide. The number of species and of genera they contain is always much smaller than in the case of continents, and their peculiar species and groups are usually well defined and strictly limited in range.

Certainly the island locations of the two sites for this study have contributed to their role as two of the few remaining places where whaling is an important method of food production. As "small scale laboratories" (King 1993, 13) these whaling islands allow for the study of their cultures and observation of the systems that support their whaling operations.

World and Regional Whaling

Whaling as a topic of scholarly inquiry is vast and few have attempted to cover its depth and breadth in a single work. Two of the most notable and enduring volumes on the topic are by Alexander Starbuck (1878) and Johan Nicolay Tønnessen and Arne Odd Johnsen (1982), both of which favor the historical approach and contribute less to the physical or biological sciences. Recent works by Randall Reeves and Tim Smith (2003; 2006) and James Estes and colleagues (2006) provide more balance between the human and natural sciences. All of these global-scale studies of whaling focus primarily upon commercial operations targeting IWC species, and less upon artisanal hunting of small cetaceans.

The most complete worldwide summaries of small cetacean operations were conducted by Edward Mitchell (1975) and S. Northridge and G. Pilleri (1986). These works are no longer current but provide valuable historical information. Another worldwide survey of whaling operations focuses primarily upon small cetacean operations (not by design but simply because they are more numerous than operations targeting IWC species) and is currently underway by Martin Robards and Randall Reeves (n.d.). Northridge and Pilleri organized their study by species, Robards and Reeves geographically, and Mitchell provided both systematic (based upon species or genera) and geographical delineations in his volume. Boris Culik (2004) offers an exhaustive survey of the biology of small cetaceans and includes valuable, yet not complete, information on whaling operations targeting each species.

Within the North Atlantic, the most thorough historical study of whaling was conducted by Ole Lindquist (1994; 1997) but does not cover whaling operations of the twentieth century or beyond. The special issue of *North Atlantic Studies* devoted to "whaling communities" (Westergaard 1990) provided case studies of contemporary whaling in this region but made no claims at comprehensiveness. The volume by Gregory Donovan and colleagues (1993) focuses primarily upon the biology of the pilot whale but provides valuable information on North Atlantic whaling activities as well.

In the Caribbean, fewer regional surveys of whaling activities exist. The paper by Aldemaro Romero and Joel Cresswell (2005) combines elements from several island-specific case studies (e.g. Romero et al. 1997; Romero and Hayford 2000; Reeves 2001; Romero et al. 2002) and best approaches a region-wide survey of historical and contemporary whaling operations. William Price (1985), writing for the IWC, presented an update on whaling in the Caribbean but failed to investigate several opportunistic or possibly regular artisanal operations on islands outside of his main study areas: St. Vincent, Bequia, and St. Lucia. Most Caribbean whaling literature focuses upon the aboriginal hunt for humpback whales from Bequia (e.g. Adams 1971; 1994; Ward 1988; 1995; Hamaguchi 2001; 2005).

St. Vincent

There have been few investigations by academic researchers into the artisanal whaling operation on the island of St. Vincent. As mentioned above John E. Adams (1970; 1971; 1980; 1985; 1994), introduced the fisheries and whaling operations of St. Vincent and the Grenadines to academic geography and continued to write on related topics throughout his career. Adams' interest in the artisanal whaling operation on St. Vincent was influenced by his personal observations of, and participation in, whaling activities and was informed by R.S. Rack (1952) who made a pioneering study of the operation over a decade earlier. Contemporaneous to Adams was the husband-and-wife team from the University of Florida, David and Melba Caldwell, who, together and separately, published widely on the subject of operations targeting small cetaceans in the Caribbean (e.g. Caldwell and Erdman 1963; Caldwell and Caldwell 1971; Caldwell et al. 1971). Finally, Nigel M. Scott (1995), a Vincentian who studied at the University of the West Indies, Barbados campus, in the 1990s wrote his M.S. thesis in the field of Marine Resource and Environmental Management titled, "The Current Status and Management

Options for the Mammalian Fishery in Barrouallie, St. Vincent, West Indies." Since 1995, the only publications to mention the Barrouallie operation targeting small cetaceans have been the broad regional and global surveys listed above or works that have focused upon the Bequia humpback whaling industry, while mentioning the Barrouallie operation as an aside (e.g. Hamaguchi 2001, 2005).

The most current and complete anthropological study of St. Vincent culture and identity is by Virginia Heyer Young (1993), who cites several unpublished dissertations that both informed and influenced her own study (Spinelli 1973; Betley 1976; Hourihan 1975; Gearing 1988). Hymie Rubenstein's village studies (1977; 1980; 1987) have also been informative, both to Young and to the present study.

Research based on St. Vincent that is unrelated to whaling but along similar human-environmental themes has included many volcanological studies of Mt. Soufrière, its eruptions, and their human impact (e.g. Anderson 1785; Anderson 1903; Flett 1908; Hovey 1909; Aspinall et al. 1973; Barr and Hefter 1982; Fiske and Shepherd 1982), research on the pre-Carib petroglyphs found at several sites on the island (Fewkes 1914; Huckerby 1914; Dubelaar 1995), classic economic geography (Wright 1929; Walker 1937), a study of natural resources and class history (Fraser 1975), ethnographical research on speech, song, and other cultural traditions (Abrahams and Bauman 1971; Abrahams 1974; 1982; Rubenstein 1976), politics and political ecology (John 1973; Grossman 1993; 1997; 1998), and an analysis of the island's potential to support "alternative" (eco-) tourism industries (Duval 1998). Furthermore, any treatment of the Garifuna/Garinagu diaspora has usually mentioned the group's St. Vincent origins to some degree (e.g. Davidson 1980; Gullick 1985; Matthei and Smith 2008).

Faroe Islands

According to the MIT anthropologist Jonathan Wylie (1993, 353), the *grindadráp*, or Faroese pilot whale hunt, "supports an immense literature." Kate Sanderson (1992, 15) has described the "largest body" of this literature as

> consist[ing] of the many popular and general descriptions which have proliferated since the nineteenth century, most of which are representative of the broad genre of travel writing.

However, predating the first relevant travelogues is the valuable information on whaling that Sanderson has extracted from early maps and clerical data, primarily in Faroese and Danish archives. Most travelers' accounts of journeys to the Faroe Islands include some mention of whaling activities. Sanderson's *Textual History of Whaling Traditions in the Faroes* (1992) provides an exhaustive review of the literature, including travel writing in several European languages, from the sixteenth to the twentieth centuries. Jóan Pauli Joensen's more recent cultural study of the grindadráp (2009) expands upon some of the more relevant texts.

One of the earliest foreign visitors to the Faroe Islands to write in a detailed manner about the grindadráp was Lucas Debes, a Danish priest who served in the Faroes in the late seventeenth century (Debes 1676). Other foreign travelers left their impressions of the grindadráp, including, from the nineteenth century, a German lawyer (Graba 1830), an American botanist (Taylor 1997), and a British geographer (Grossman 1896); and from the twentieth century, several British soldiers who were stationed on the Faroes during the Second World War (Norgate 1943; Williamson 1948). One of the Faroe Islands' more famous visitors who left a literary record of her impressions was Anne Morrow Lindbergh, wife and aviation partner of Charles Lindbergh. The Lindberghs visited the Faroes as part of a multi-stop transatlantic flight during the 1930s and though they did not witness a grindadráp, it was apparently described to them, as a brief description is included in the account of their visit (Lindbergh 1974).

Academic treatments of whaling in the Faroe Islands begin with Jens Christian Svabo, an eighteenth century Faroese economist and natural historian educated in Copenhagen, who wrote about Faroese natural resource economics and addressed pilot whaling along with other folk methods of food production, including sheep-rearing and fowling (Sanderson 1992). H.C. Müller (1882 [cited in Sanderson 1992]) made a valuable treatment of the grindadráp during the late nineteenth century—a period of abundance of whales and frequent grindadráp.

Recent studies of the grindadráp fall into three major categories: cultural, biological, and analyses of—or contributions to—the controversy surrounding whaling. The most prolific writers on the culture of the grindadráp are the Faroese ethnographer Jóan Pauli Joensen (1976; 1990; 2002; 2009) and American anthropologist Jonathan Wylie (1974; 1981). Other informative cultural studies have been conducted by Michael Moore (1982), Jennifer Gibson-Lonsdale (1990), Eric Clark (2004), Dorete Bloch (2007), and Seán Kerins (2008). Additionally, whaling is often discussed in broader treatments of Faroese culture (e.g. Williamson 1948; Blehr 1963; West 1972; Wylie 1987; Gaffin 1996; Nauerby 1996; Clark 2004). Joensen's (2009, 21-22) point regarding travel writers that "almost everyone who has written about the Faroes also mentions the dramatic whale hunt" would apply almost as well to scholars too.

Biological research into whales and whaling in the Faroe Islands is predominantly led by Dorete Bloch, biologist at *Føroya Náttúrugripasavn*, the Faroese Museum of Natural History, and director of the museum's pilot whale research program. Bloch has had a part, either as author, co-author, or acknowledged adviser, in most major biological studies of pilot whales in Faroese waters for decades (e.g. Bloch 1982; Bloch et al. 1990a; 1990b; 1993; 2003; Donovan et al. 1993; Dam and Bloch 2000; Heide-Jørgensen et al. 2002; Buckland et al. 2003). Other biological research includes works by Liselotte Wesley Andersen and Hans Redlef Siegismund (1994), Alan Abend and Tim Smith (1999), and Geneviève Desportes (2002). Jústines Olsen (1999), a Faroese veterinarian, has provided an analysis of the killing methods used in the grindadráp, informed by his knowledge of whale anatomy and physiology.

Faroese whaling is a controversial topic within environmental literature. Prominent polemic writings against whaling in the Faroes include M. Glover (1981) and Jennifer Gibson and colleagues (1987). Works defending Faroese (and sometimes other) whaling operations are represented by Kate Sanderson (n.d.) and the High North Alliance (1997). Analyses of the conflict include Arne Kalland (1993b; 1994a), Georg Blichfeldt (1994), Kate Sanderson (1994), and Chilla Bulbeck and Sandra Bowdler (2008).

The comparative approach taken by this research is not without precedent. Previous scholarship has compared Faroese whaling with cooperative maritime food production elsewhere, including tuna seining on the Caribbean island of Dominica (Wylie 1993), tuna seining in Sicily (van Ginkel 2005), aboriginal whaling by the Makah in Washington State (van Ginkel 2007b), and other pilot whale drives in the Shetland Islands (Smith 1993) and Newfoundland (Fielding 2007). Bernard Stonehouse (1983) compared the Faroese reliance upon marine resources in general with the lack of such resource use in the Falkland Islands.

Whaling may have produced more literature than any other aspect of life in the Faroe Islands. However, other scholars have conducted studies unrelated to whaling that have informed the present research. These topics include construction of national identity (Joensen 1989; Wåhlin 1989; Østergaard 1992; Wylie 1982; 1989; 1995), historical human ecology (Amorosi et al. 1997; Edwards 2005a and papers therein), social control and societal norms

(Gaffin 1995), sheep-rearing (Joensen 1999), resource depletion and migration (Hamilton et al. 2004), and the aforementioned studies on traditional methods of food production.

Lacunae and Niche

This research is a study that focuses upon three primary actors: human society, wildlife, and the physical environment. As such, it is purely geographical. The whaling operations in the Faroe Islands and St. Vincent have rarely been examined geographically, and never compared one to the other. Through the perspective of conservation geography, this study investigates the conservation strategies already in place—often deeply embedded within traditional cultural practices. However, certain elements of the natural environment are now changing at a pace unmatchable by the inertia-laden evolution of cultural traditions. This study acknowledges the need for, and examines the effectiveness of, quick insertion of science-based lessons into the Faroese and Vincentian conservation schemes, which can augment the traditional environmental strategies and help adjust to a rapidly changing world (Moller et al. 2004).

The threefold focus upon culture, conflict, and conservation tells a broader story of whaling and its human and environmental consequences than previous studies with other research questions or motivations. This research shows that neither whaling nor anti-whaling is an entirely linear argument, that each is nuanced, and entails multiple layers of cultural and environmental discourse. The cultural element of this study considers the cultures of anti-whaling as well as those of whaling. While the whaling debate is ostensibly about resources and stock assessments, this study shows that cultural affinity for whales on both sides of the debate—as Cultural Keystone Species in St. Vincent and the Faroe Islands and as totemic species within cultures of anti-whaling—may play an equally important role in the oft-passionate cases made by proponents and opponents of whaling alike.

This study also contributes to the long fascination geographers have had with the sea (e.g. Maury 1857; Alexander 1968; Walton 1974; Jackson 1995; Steinberg 2001; Longhurst 2007). This interest has primarily been in the realms of physical geography and transportation, however the Fijian geographer Joeli Veitayaki (1993) has issued a call to reconsider the ocean as a place for all types of geographical research.

The comparative scope of this project finds field sites at opposite points along the rim of a great ocean, within different regions and climates, with different histories and cultures, yet is specific enough to focus upon artisanal operations targeting whales even of the same genera (*Globicephala*). It brings together two cultures: one developed, wealthy, and European, the other developing, poor, and post-colonial. The choice of study areas, and the equal attention given to both, challenges the notion of "Third World bias" within cultural ecology research (Butzer 1989, 193) and provides a fresh approach to research into the cultural factors relating to marine natural resource use—a topic once dominated by the concept of simple transfers of knowledge from the "temperate minority" to the "tropical majority" (Kurien 2002).

According to Carl Sauer (1941, 8), the "whole task of human geography… is nothing less than the comparative study of areally localized cultures." Indeed, comparative studies have a significant history in geography (Mikesell 1960; Brookfield 1962; Wood 2001) and related fields such as cultural anthropology (Murphy and Steward 1956; Steward 1960; Harris 1968; Wylie 1982; 1993) and political science (Jull 1991; Anckar 2006). While human geography today certainly shows greater breadth than Sauer's emphasis on comparative studies alone, his definition nonetheless serves as a reminder that the investigation of areal differences are a key to geographical scholarship.

CHAPTER 4: RESEARCH METHODS

A Fieldwork-Based Approach

Continuing in the long tradition of geographers at Louisiana State University (Mathewson and Shoemaker 2004) and the Berkeley school of cultural geography more generally (Jones and Sauer 1915; Sauer 1941; Leighly 1976; West 1979), and building upon the foundations set by some of academic geography's earliest antecedents (Mathewson 2001) and most stalwart contemporary scholars (DeLyser and Starrs 2001), the research for this project has been primarily fieldwork-based. However, this work goes beyond mere empiricism and description. Acknowledging that there are three main actors in each of the networks which I study—human societies, whales, and the physical environment—I have sought to heed the advice of Jennifer Wolch and Jody Emel (1998, *xv*), who, in their treatise on animal geographies state that,

> contemporary geographical work on nature-society relations, fully informed by social theory, philosophy and cultural studies, thus provides solid ground on which to base new thinking about animal-human relations.

I spent five field seasons in the Faroe Islands (108 days total) and three in St. Vincent (67 days total). For comparative perspective, I also paid shorter visits to two of the five artisanal whaling villages on St. Lucia, the one remaining aboriginal whaling village on Bequia, and several former artisanal whaling communities in Newfoundland and Massachusetts. The piecemeal nature of the funding I received for this research necessitated the string of shorter field seasons rather than the traditional long-term embedment. For the remainder of this chapter, I shall discuss the specific research methods used.

Observation and Participation

The most important method by which I learned about whaling in both field sites was simply to observe and assist whalers in action. I immersed myself as much as possible into the daily life of Faroese and Vincentian whalers and those associated with whaling. This was more straightforward on St. Vincent than in the Faroes. In St. Vincent, whaling is a daily activity and one can reliably expect it to take place six days per week from only one village, Barrouallie. In the Faroe Islands, whaling can occur at any time and at any of the twenty-two approved whaling bays, thus I had to always be prepared to travel quickly if a pod of whales was sighted.

St. Vincent

Upon meeting Samuel Hazelwood, Barrouallie's most experienced and successful harpooner, I explained my research goals and was offered a spot onboard his boat, the *Sea Hunter*. I participated a total of seventeen whaling voyages (three in 2008 and fourteen in 2009) during which sixty-eight cetaceans were caught. I measured the following data for each voyage: time of departure from and return to port, GPS tracks of the course followed, location and time of all whale sightings and catches. I also recorded general observations of the whaling activities.

The handheld GPS device—a *Garmin eTrex Legend C*—was the most useful tool for this part of the project, not only for marking locations, but for marking exact times as well. Using the device's "waypoint" feature, I recorded the time and location of all whale sightings, harpoon shots (or throws), strikes, misses, and other points of interest.

I also marked a waypoint to record the death of each captured whale or dolphin, not to record the location but to allow for an exact calculation of time-to-death. I recorded the first successful harpoon strike (marked *H* for *hit*) and the time at which the whale died (marked *D* for *death*). I considered the time of death to be when the animal ceased all breathing, voluntary movement, and reaction to stimuli (for discussions of these somewhat problematic yet still most widely accepted indicators, see IWC 1980; Bowles and Lonsdale 1994; WDCS and HSUS 2003; Kalland 2009). After witnessing several cetacean deaths it became quite intuitive to know when a whale or dolphin had in fact died. I carried a small notepad to record notes about each GPS waypoint so that I could quickly mark each with a default numerical identifier, rather than take the time to input a descriptive name electronically.

My only critique of any of the equipment used in this research is that the GPS device was not as waterproof as it claimed to be. According to the manual, the device was "rugged, fully-gasketed… water resistant. Submersible 1 meter @ 30 minutes" (Garmin 2004, 67). My experience was that the GPS performed well in all conditions—including rain and ocean waves breaking over the gunwales of the boat—until the last week of fieldwork when a small amount of water became visible beneath the plastic cover of the LCD screen. After this, it was only a matter of days before the device had lost all functionality and was ruined.

Of course my role onboard the *Sea Hunter* was not simply that of observer. When a whale was struck, I was given the task of hauling it in on the harpoon line. Together with the sternman, I had to lift the animal out of the water and into the boat, if it was small enough to fit. Once the animal was onboard, it was often my job to cut out the harpoon with a knife, retie the gill, and straighten the foreshaft if it had been bent. This was bloody and difficult work, made more challenging by the constant roll and pitch of the boat and the need for haste to prepare for the next harpoon strike. I also took photographs whenever possible to document visually all of the activity aboard the whaleboat.

Faroe Islands

In the Faroe Islands context, I was not able to participate as directly in whaling activities as in St. Vincent. This was usually due to the fact that there were so many experienced whalers on hand that there would be no need for a novice (and a *foreign* novice at that) to assist. I did, however, have the opportunity to participate in the passing-on of the grindaboð and the hauling of dolphins ashore after a kill.

My primary role in Faroese whaling was that of observer, rather than participant. More so in the Faroe Islands than in St. Vincent, there is a need to either be in the right place at the right time, that is, near the whaling bay when the whales are sighted, or to travel very quickly from wherever one first hears the grindaboð to the bay where the whales will be driven. The likelihood of making this trip successfully is based simply on logistics and geography. If one is in Tórshavn and hears that whales are being driven into a bay on Suðuroy, the southernmost island, there is little chance in arriving before the grindadráp is complete. However, with access to a vehicle and a mobile telephone, one can often be present at a grindadráp that occurs anywhere within the islands connected by fixed links. Even so, in my 108 days of fieldwork in the Faroes, I was only present for four grindadráp (the same word is used for both the singular and plural forms).

Beginning during my first field season in the Faroe Islands, I became closely associated with the scientists at *Føroya Náttúrugripasavn*, the Faroese Museum of Natural History. The marine biologists, entomologists, and ornithologists at this institution were supportive of my work and helpful in my pursuits. When a person sights a pod of whales, he or she first alerts the sýslumaður to report the sighting and to allow this official to decide whether there will be a grindadráp. Often, the second person to be notified is Dr. Dorete Bloch, head biologist of

Føroya Náttúrugripasavn's pilot whale research program. Dr. Bloch keeps a list of telephone numbers of interested parties who she then notifies in the event of a grindadráp, as sort of an early grindaboð.

By associating myself with the scientists at Føroya Náttúrugripasavn and joining them during their own fieldwork—tasks such as collecting interesting fish brought in by fishermen, placing satellite tags on captured dolphins for re-release, or investigating the bird rookeries of a remote sea cliff—I was able to become a familiar face among the corps of wildlife researchers in the Faroe Islands. I carried a mobile telephone with a local number, which was added to Bloch's early grindaboð list and was nearly always among the first to be notified of an impending grindadráp. Naturally, I would pass on the grindaboð to others when I received it and it never ceased to cause laughter in my non-scientist Faroese friends that I, a foreigner, was informing them of a grindadráp—their own national symbol.

Interviews

Besides the countless casual, but informative, conversations that took place during my fieldwork, I conducted formal and semiformal interviews with a variety of stakeholders in both locations (Table 4.1). Much of the information in the descriptive chapters (5 and 6) has come directly from these interviews.

Student Surveys

Perceptions and opinions of today's youth are arguably the best indicator of future trends in Faroese and Vincentian whaling—at least those trends that are within the control of culture and society. For this reason, I conducted surveys with students in both locations. The specific questions asked were not identical in the two surveys, owing to the different nature of whaling activities. However I intentionally structured the surveys so that straightforward comparisons would be possible.

Table 4.1: Individuals interviewed formally in each field site.

St. Vincent		Faroe Islands	
Name	**Role**	**Name**	**Role**
Arden	Harpooner, boat owner	Bloch, Dorete	Biologist
Brown, Victoria	Vendor	Dahl, Arne	Grindaformann
Charles, Philip	Former whaler	Danielsen, Jens	Adventist Pastor
Cruickshank-Howard, Jennifer	Senior Fisheries Officer	Garðalíð, Magni	Knife-maker
Francis, Prislet	Co-op employee	Guttesen, Rolf	Geographer
Fredericks, George	Former whaler	Holm, Denis	Whaling participant
Harry, Vernon	Former whaler	Joensen, Finnbogi	Grindaformann
Hazelwood, Samuel	Harpooner, boat owner	Joensen, Hans	Grindaformann
Kimmie	Co-op employee	Jóensen, Jóan Pauli	Ethnologist
McHorne	Former whaler	Kalsø, Bjørn	Minister of Fisheries
Pierre, Vibert	Co-op manager	Marni, Tummas	Grindaformann
Ryan, Raymond	Chief Fisheries Officer	Olsen, Justines	Veterinarian
Scott, Nigel	Fisheries researcher	Poulsen, Andras	Sýslumaður
"Speakeasy"	Whaler	Sanderson, Kate	Ministry of Fisheries
Straker, Leslie	Researcher	Sjúrðarberg, Ólavur	Grindaformann
		Watson, Paul	Activist (anti-whaling)
		Weihe, Pál	Chief Medical Officer

<u>Faroe Islands</u>

In the Faroe Islands, I surveyed 225 youths at two separate post-secondary schools: *Føroya Handilsskúli* (Faroe Islands Business College) and *Tekniski Skúlin í Tórshavn* (Technical College of Tórshavn). The survey (Appendix B) consisted of a series of demographic questions followed by sixteen primarily quantitative or binary-response questions regarding the participant's consumption of whale products and participation in the grindadráp. I also asked about familiarity with the whaling officials and knowledge about the risk of marine toxins.

The average age of the respondents was 18.38 years, with the youngest being 15 and the oldest 32 (Figure 4.1). The vast majority (eighty-nine percent) of the students were between the ages of 16 and 20 years. There were 151 male respondents (sixty-seven percent) and seventy-three female respondents (thirty-two percent). Both colleges are located in the capital area but draw students from across the Faroe Islands. Of the 225 students surveyed, 127 (fifty-six percent) were from the capital area (defined as the capital city, Tórshavn, and the villages of Argir and Hoyvik) and ninety-eight (forty-four percent) were from elsewhere in the Faroes. The survey participants came from nine of the seventeen inhabited Faroe Islands with 143 (sixty-four percent) from villages with approved whaling bays and eighty-one (thirty-six percent) from villages without whaling bays (Figure 4.2).

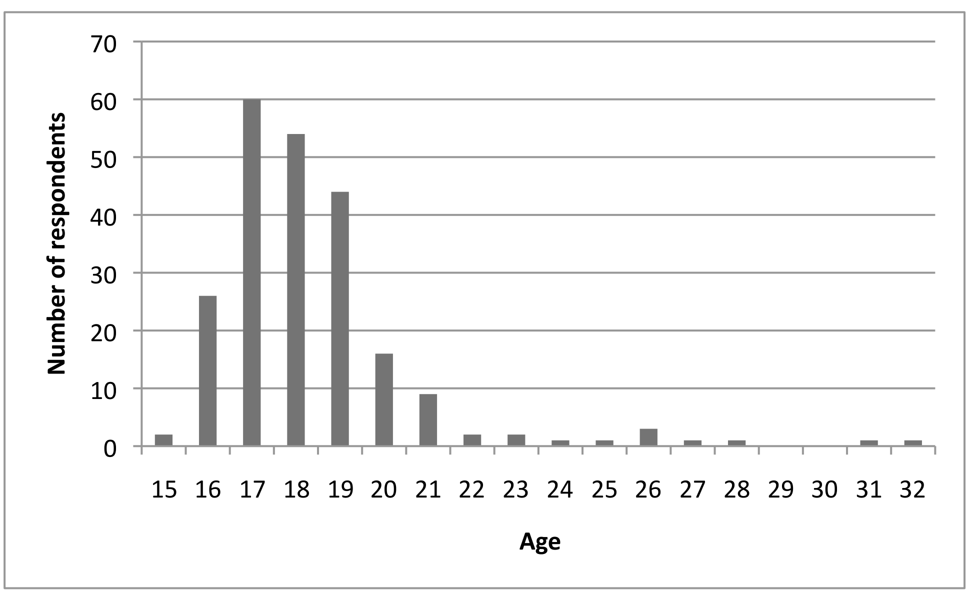


Figure 4.1: Age distribution of participants in the Faroese youth survey (n=225).

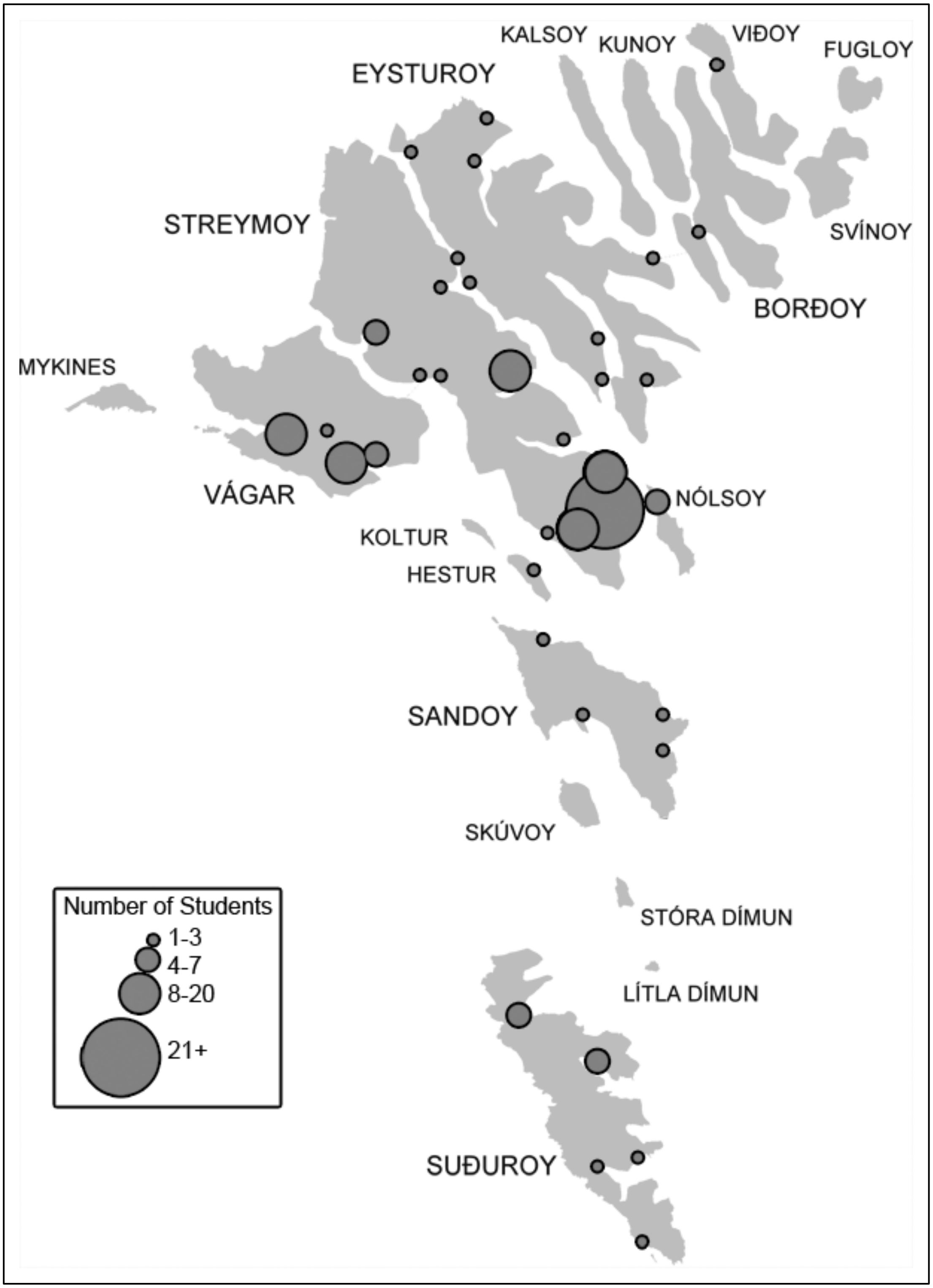


Figure 4.2: Map of the Faroe Islands showing the hometowns of students participating in the Faroese youth survey.

St. Vincent

In St. Vincent, where not as many young people could be expected to participate in whaling activities, my survey questions primarily dealt with consumption of whale meat and blubber and perceived status of those involved in whaling and in the processing and selling whale products, rather than questions of direct participation in whaling activities (Appendix A). I surveyed 211 students (average age 17.96 years [Figure 4.3], thirty-three male, sixty-seven percent female) in St. Vincent at two post-secondary schools: St. Vincent and the Grenadines Community College and St. Vincent and the Grenadines Technical College. As in the Faroe Islands, these colleges are located in the capital but draw students from throughout the country (Figure 4.4). I asked questions that followed the general trend of the Faroese youth survey but were adjusted for the local culture and methods of whaling in St. Vincent. For example, rather than asking about participation, since very few individuals partake in whaling, I asked more questions about familiarity with the industry and consumption.

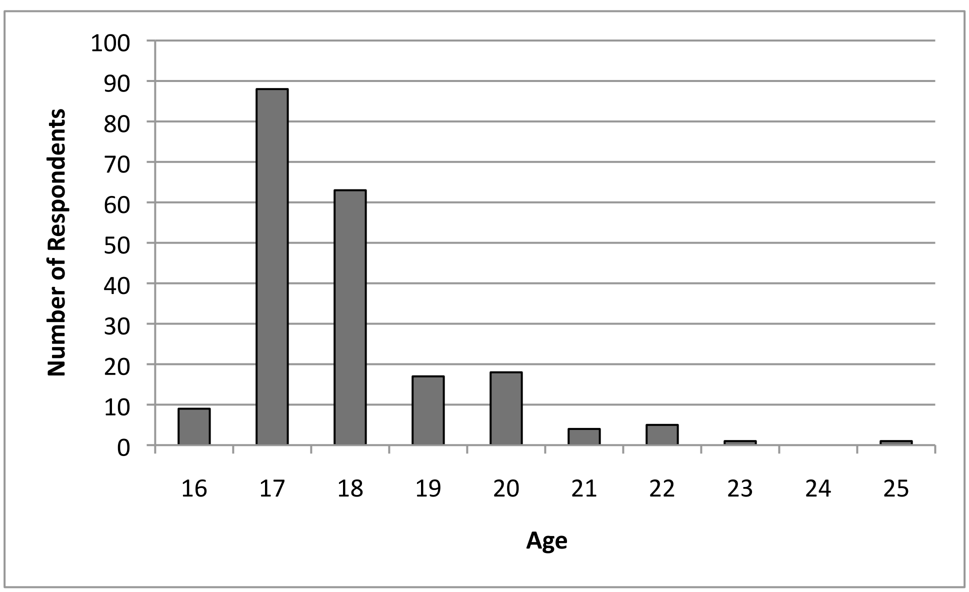


Figure 4.3: Age distribution of participants in the Vincentian youth survey (n=211).

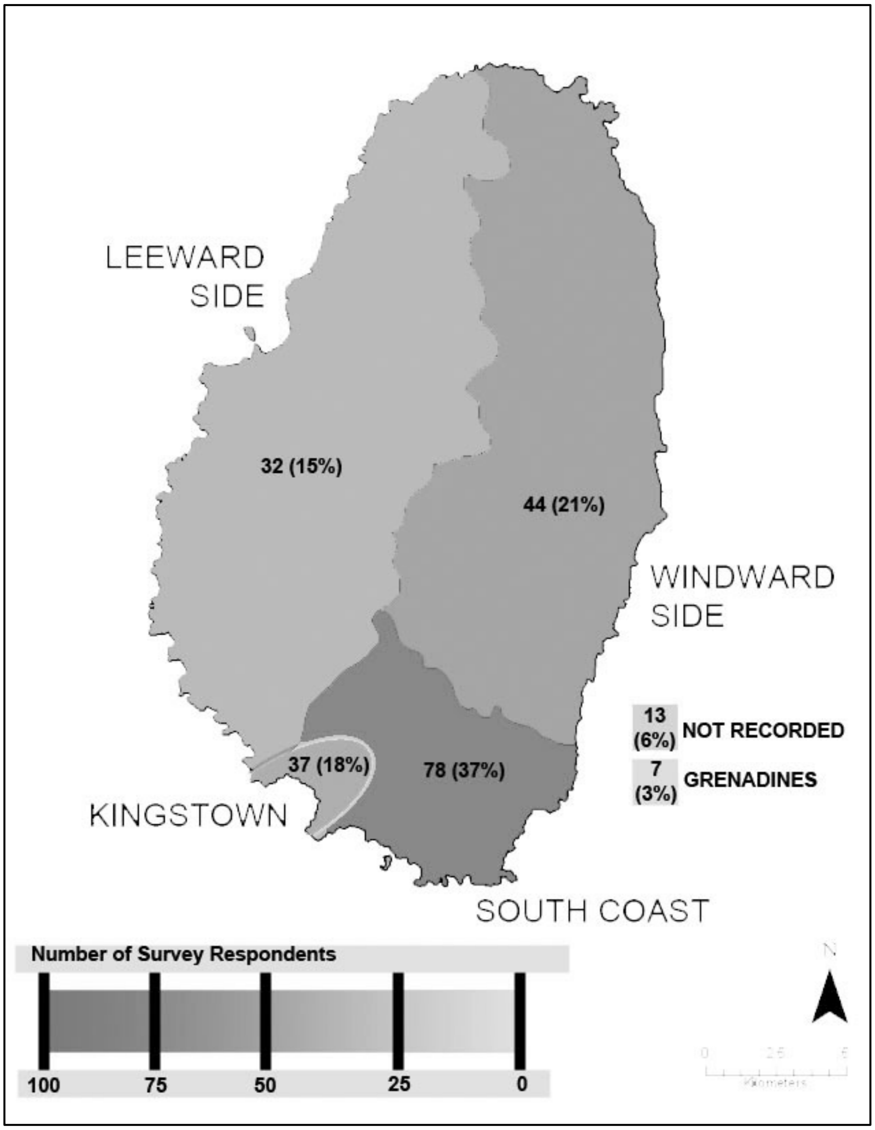


Figure 4.4: Regional divisions of St. Vincent and the Grenadines, following Adams 1980, and their representation in the Vincentian youth survey. Numbers indicate the number of participants; percentages are the relative fraction of the whole (n=211).

I compiled the results of these surveys and conducted analysis to elucidate trends, relations between demographics and perceptions of whaling activities, and to better understand the spatiality of participation, perception, and consumption, as they relate to the local whaling operations.

Analysis of Whaling Records

The whaling records available in each study location varied greatly from the other in such criteria as information recorded for each catch and temporal extent. The Faroese national whaling records famously go back to the sixteenth century (continuous from 1709 to present) and record the date, location, and number of whales caught for most grindadráp.

In St. Vincent, there are no national whaling records, nor are catches reported to any authority. The best source for data is the financial record of Samuel Hazelwood, a Barrouallie boat owner and harpooner, though his records only cover the most recent three years of whaling. Based upon estimates made by representatives from the Fisheries Division as well as personal observation, Hazelwood's boat takes approximately twice the catch as the other Barrouallie boats combined. Therefore, to extrapolate from Hazelwood's records to an estimate for the entire Barrouallie operation, I multiplied his numbers by 1.5. This method is admittedly imprecise, but presents the most accurate estimate for catches that occurred outside of the time of my fieldwork. Basic whaling records—only the numbers of pilot whales and dolphins (all species combined) caught per year—are available, but not continuous, in the literature produced by previous researchers.

I conducted statistical analysis of both the Faroese and Vincentian whaling records. Because of the cultural differences in the two whaling traditions, the information recorded in the two datasets does not correspond directly on many variables. For example, in the Faroe Islands where whaling is a community-based effort that ends with the free distribution of food, criteria such as location of the beaching, number and species of whales caught, and amount of meat and blubber produced are dutifully recorded. In St. Vincent, where whaling is a business, only the most generic distinctions are made between types of whale or dolphin caught, while the financial records are recorded in detail.

These different philosophies of record keeping make direct comparisons problematic. Still, by examining the data carefully and supplementing information from other sources, we arrive at some interesting conclusions.

Spatial Analysis

The differences in the natural landscapes of the Faroe Islands and St. Vincent have influenced the development of different whaling methods in each place. To better understand the relationships between human activity and the natural environment as they have played out in these whaling cultures, I conducted research using a variety of spatial methods—tailored for each specific environment.

St. Vincent

As mentioned above, I carried a handheld GPS unit on most whaling voyages in St. Vincent. Owing to the malfunction of the device, I finished with eleven voyages thoroughly mapped by GPS. Each map produced includes a simple basemap (Figure 4.5) of the land and the sea, without topography or bathymetry, and the following GPS-recorded data: a dotted line marking the course taken and a series of icons marking points of interest that I chose to record ("waypoints"), labeled with short abbreviations which I would expand to full descriptors after downloading the data to my laptop computer. The mapped course was occasionally discontinuous, owing to periodic lapses in satellite reception.

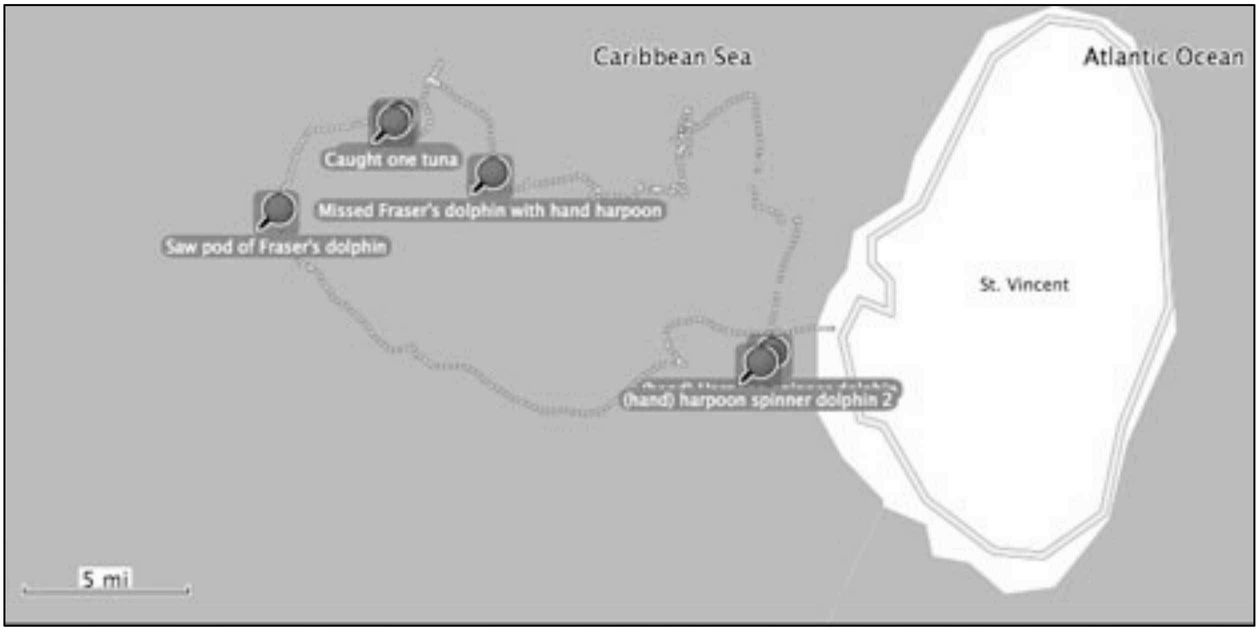


Figure 4.5: An example of a GPS-generated chart from a whaling voyage.

Each waypoint recorded not only the location and description of whatever was being marked, but the precise time as well (Figure 4.6). By analyzing these timestamps, I have been able to ascertain the beginning and ending times of each voyage, the time-to-death of each cetacean caught, and the average frequency of catches throughout the course of a day.

Figure 4.6: Waypoint Properties dialogue window from Garmin RoadTrip. Note the timestamp in the "Comment" box.

After loading the GPS data into ArcGIS 9.3, I was able analyze the catch records spatially (Figure 4.7). The addition of an overlaying grid with units measuring 0.5 degree^2 and a raster layer containing bathymetry information allowed spatial comparison over various units of area, water depths, currents, and oceanographic features. Other variables brought into the analysis include time-of-day for sightings and successful catches and species variability throughout time and space.

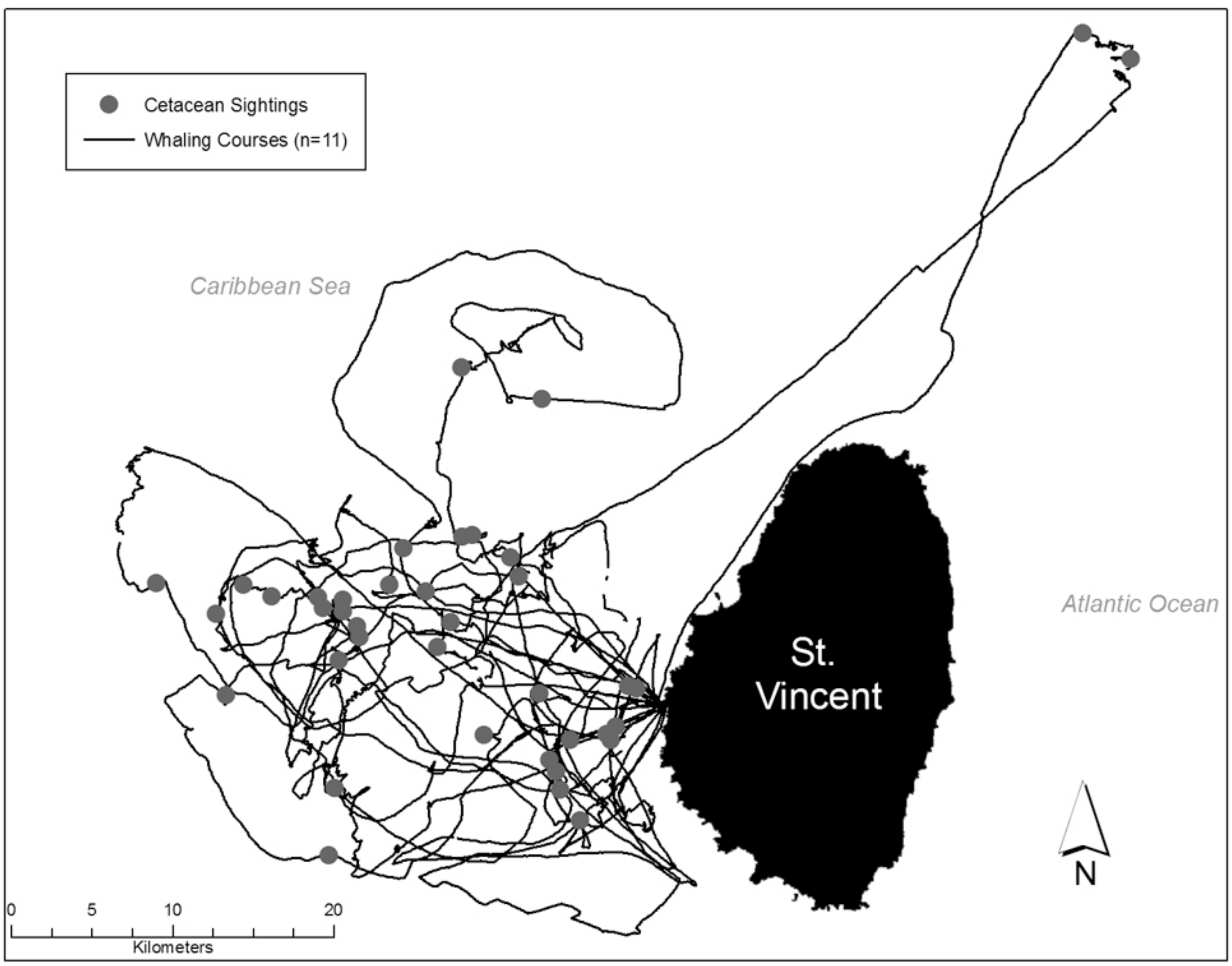


Figure 4.7: Chart showing whaling courses and sightings during participatory fieldwork.

Faroe Islands

Since 1832 the Faroese government has maintained a list of beaches where whale drives are allowed to be conducted. The list is updated periodically with some beaches being added and others being removed. To drive whales on non-approved beaches is illegal. According to previous researchers (e.g. Nauerby 1996; Bloch and Joensen 2001; Joensen 2009), both Faroese and foreign, the approval of whaling beaches is based primarily upon the physical characteristics of the beach—especially slope and smoothness. In this part of the research, I used coastal surveys and statistical methods to test the relationship between beach profile and approval for whaling by comparing the measured slopes and other physical characteristics of a selection of approved and non-approved beaches.

After consulting with Anne-Marie Norby of *Landsverk*, the Faroese Office of Public Works, I chose twenty-nine beaches to survey: eighteen approved and eleven non-approved (Table 4.2). I chose a sample of beaches that covered a large geographical area, representing all seven of the islands with approved whaling bays (Figure 4.8). The beaches not approved for whaling can further be divided into three statuses: those formerly approved, those that have been used for whaling but never approved, and those never used for whaling. The extensive whaling records available for review allowed for an in-depth geographical analysis of the beaches where whaling has or has not taken place over the past 400+ years in the Faroe Islands.

Table 4.2: Surveyed beaches in the Faroe Islands and their statuses as approved/non-approved whaling beaches.

Approved		Non-Approved
Bøur		Formerly Approved:
Fámjin		Saksun
Fuglafjørður		Sandvík
Gøta, north		Used, never approved:
Gøta, south		Borðoyarvík
Húsavík		Haraldssund
Hvalba		Kaldbak
Hvalvík		Lambi
Hvannasund		Sumba
Klaksvík		Sørvágur
Leynar		Never Used:
Midvágur		Arnafjørður
Øravík		Dalvík
Sandavágur		Hosvík
Sandur		
Tjørnuvík		
Tórshavn		
Vestmanna		

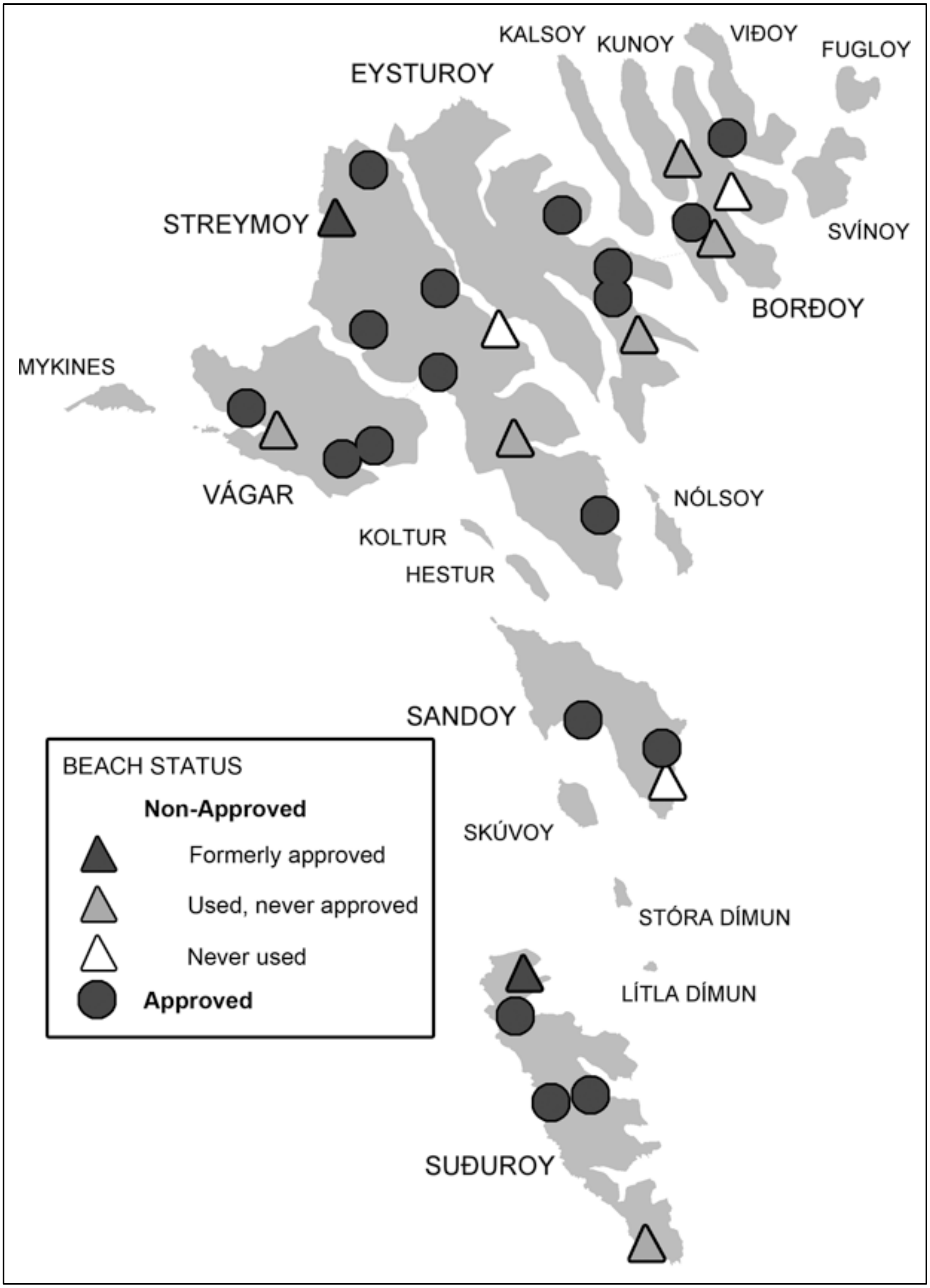


Figure 4.8: Beaches surveyed (n=29) and their whaling approval status.

The first step in this process was to conduct profile surveys on a sample of approved and non-approved beaches. Opting against survey methods that require only one person (e.g. Delgado and Lloyd 2004) owing to criticism of these methods (e.g. Namikas et al. 2007) and the risk inherent in entering the water on remote beaches alone, I recruited volunteers from among my friends in the Faroe Islands to assist with the surveys.

Despite James Parsons' (1977, 15 [cited in Mathewson 2001, 222]) admonition that geographical fieldwork occasionally requires "taking risks, living dangerously," accessibility and safety were the major factors in my choices of whether or not to survey a given beach. In addition to the ever-present risk of hypothermia associated with low water temperatures (often 8-10˚C [46-50˚F]), some beaches had strong rips, high-energy waves, and unsure footing. These beaches were often far from population centers, and I did not want to risk the safety of my assistants or myself by entering rough, cold water in remote areas where help would be hard to find. Also, some of the formerly approved beaches had been developed with harbor facilities and other structures to the point that they scarcely resembled their previous physical structure when they had been used for whaling; surveying these beaches would not have yielded any useful data.

Safety concerns notwithstanding, we were able to conduct surveys on eighteen of the twenty-three approved whaling beaches and eleven non-approved beaches. Wearing chest-waders or drysuits, my assistants and I conducted the surveys using a clinometer, 50-meter tape, and two ranging poles (Figure 4.9). More advanced survey equipment such as a total station was not available. For most beaches we conducted three parallel survey lines; on very small beaches we conducted only two. As much as possible, I timed the surveys during low tide so we could progress as far as possible into the water before it became too deep.

Figure 4.9: Research assistants conducting beach profile survey at Vestmanna.

After normalizing the datasets so that the waterline was represented by the origin (0,0) on each line (Figure 4.10), I produced one graph for each beach, showing the three (or sometimes two) parallel profiles. Because the waterline had been chosen as the origin, coordinate pairs to the landward side of the origin always have negative x-values and generally have positive y-values—that is, they are behind the waterline and above sea level. Pairs to the seaward side always have positive x-values and generally have negative y-values, indicating that they are beyond the waterline and below sea level. Exceptions exist, of course, as in the cases of gullies and other low-lying areas on the beach and bars and other rises under water that occasionally break the surface. This data can be displayed two- or three-dimensionally (Figure 4.11 and Figure 4.12).

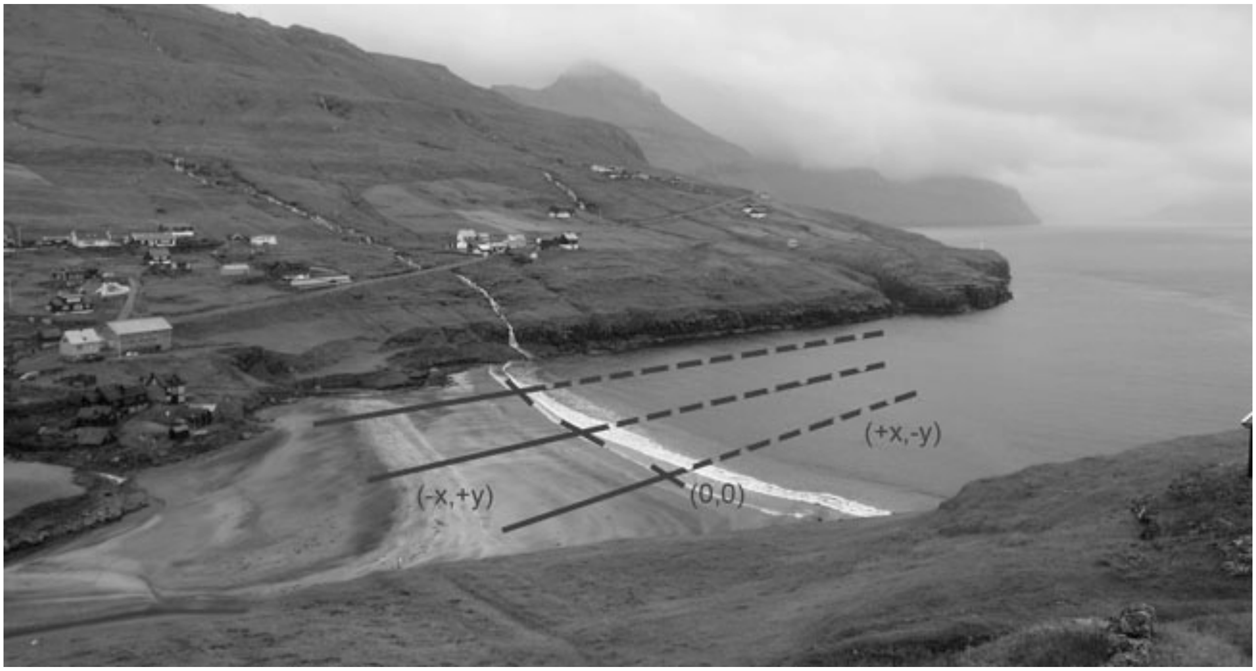


Figure 4.10: The beach at Leynar, with overlay showing three parallel survey lines with associated ordinal values.

Figure 4.11: 3-D graph showing sample beach profile created from survey data. Note vertical exaggeration. Image by Diane Cooper.

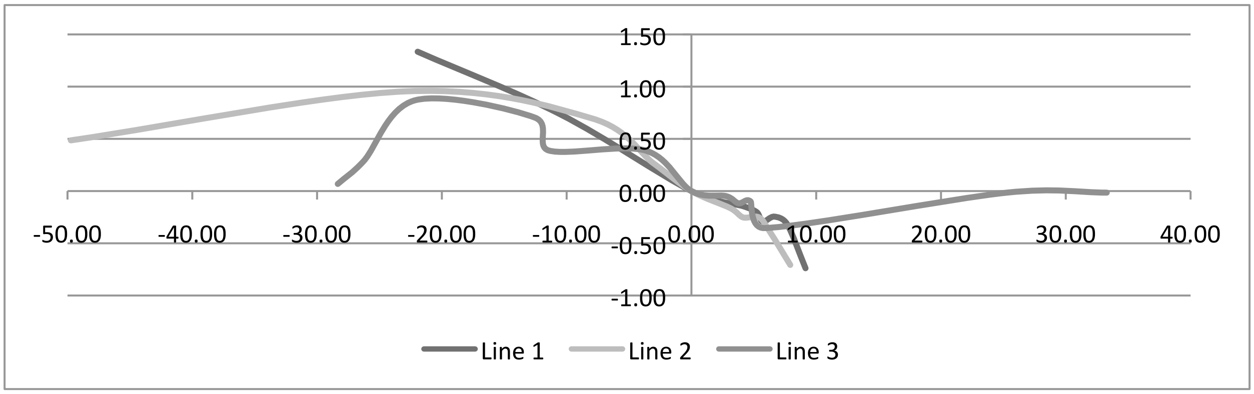


Figure 4.12: 2-D graph showing sample beach profile created from survey data. Units are meters. Note vertical exaggeration.

Arguably, the most important physical characteristics of a beach—at least with regard to its selection as an approved whaling beach—are the slope and smoothness of the terrain. To measure these criteria, for each beach I combined all (x,y) pairs on the landward side of the waterline into one dataset and created a trend line for these data. I did the same with all (x,y) pairs seaward of the waterline (Figure 4.13). Calculating the slope of these trend lines yields the average slope (m) of the beach and the nearshore bathymetry. A value close to zero indicates a gradual slope. Calculating the r^2 values for both trend lines shows how well the lines approximate the actual data. An r^2 value of 1.00 is an exact fit; values less than 1.00 indicate progressively worse fits. Thus, an r^2 value near 1.00 indicates very little variation between the trend line and the data that it approximates, thus much smoothness in the terrain represented by the data. The ideal whaling beach, in terms of physical geography alone, would have an m-value near zero and an r^2 value near 1.00.

After creating graphs for each beach with trend lines, I calculated two m- and r^2 values for each: one for the portion of the beach above water and one for the portion below water. The accepted hypothesis in the literature is that beaches that are approved for whaling will have a more gradual slope (m-value closer to zero) and will be more smooth (r^2 value closer to 1.00) than non-approved beaches. Using the null hypothesis that "there is no difference in slope (m) or smoothness (r^2) between approved and non-approved beaches," I conducted both a two-sample t-test and Wilcoxon Rank Sum test and calculated the p-value for both. P-values of 0.05 or 0.10 are commonly used as a threshold for acceptance or rejection of the null hypothesis. If the p-value is lower than the threshold, the null hypothesis will be rejected. In the case of this experiment, if the resultant p-values are greater than the threshold, we will fail to reject the null hypothesis and will accept the evidence that indeed there is not a significant slope-related difference between approved and non-approved beaches.

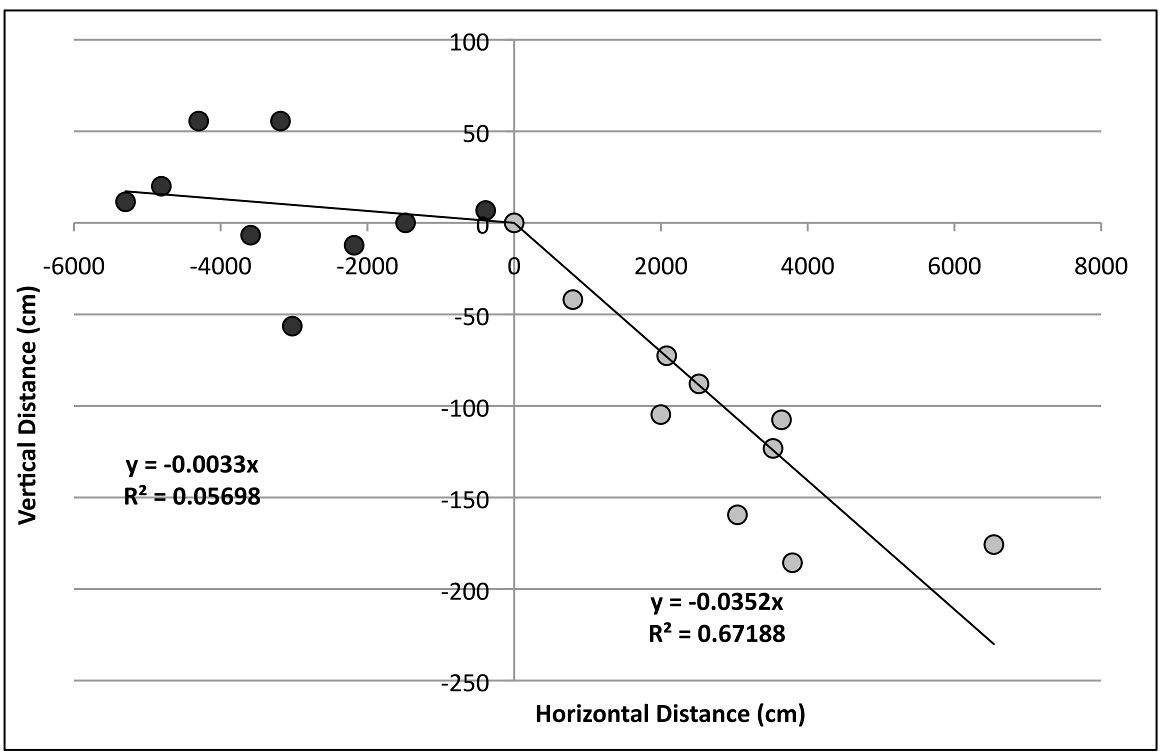


Figure 4.13: Graph showing trend lines and calculated slope and variance values for a sample beach in the Faroe Islands. Markers to the left of the origin are on shore; those to the right of the origin are underwater. Note vertical exaggeration.

Archival Research

In addition to gathering data first-hand, I spent time in several archives viewing primary and secondary sources. The archives I used are: the Research Library at the New Bedford Whaling Museum in New Bedford, Massachusetts; The Rooms Provincial Archives in St. John's, Newfoundland; the National Archives and public library in Kingstown, St. Vincent; the library at Føroya Náttúrugripasavn; Føroya Landsbókasavn, the National Library of the Faroe Islands; and the Nordic Houses in Tórshavn and Reykjavík, Iceland (called the Norðurlandahúsið and the Norræna Húsið, respectively).

Archival work provided this study with an historical perspective capable of stretching back beyond the lifetimes of even my oldest informants. To conduct foreign fieldwork without examining a place's history is to miss an opportunity to travel through time as well as space. Also, by visiting and studying other former and active whaling societies I was able to expand the comparative scope of the project, not by bringing in more locations and cultures to be compared, but by the identification of practices, beliefs, and attributes that should be understood as either common among whaling cultures or as unique to the places upon which I focus for this study.

Mixed Methodology

I chose this mixed methodological approach to be able to more thoroughly investigate the relationship between whaling activities and the natural and cultural environments of the two field sites. According to Sarah Elwood (2010, 95), mixed method approaches find strength in their ability to

> rely upon multiple types of data, modes of analysis, or ways of knowing, but may use these elements in a variety of ways in relationship to one another, for multiple intellectual and analytical purposes.

Just as in Elwood's (2010, 95) exposition, I arrived at the decision to use a mixed method approach at the very outset of this study—"at the moment when we formulate research questions." With a comparative study aiming to understand the multi-faceted interactions between human societies and the natural environment in two starkly contrasted locations, it was evident that no single methodology or epistemological framework would suffice to contain the breadth of information I hoped to include. While cultural and political ecology provide the majority of the literary background, and conservation geography sets the forward course of the research and its application, I have also included GIS, coastal surveys, and historical research, and have also made much effort to become informed about the biological and human health issues relevant to this study.

Both qualitative and quantitative data are of importance to this project. It has been my goal to produce data and conduct analysis that does not lead to an overload of unexamined information, nor to apparent contradictions, rather, to hold "in productive tension" the different geographical approaches and, through this mixed methodology, to keep this research "sensitive to a range of questions and debates" (England 2006, 291).

Any one method could have been selected and intensified to produce a detailed study of that aspect of the subject. However, given the broad scope of this project, I felt it best to address a wide range of geographical questions, using an equally wide range of techniques. Perhaps a future step in this ongoing process will be to return to, and refocus upon, one or more of the specific empirical studies contained within this dissertation.

CHAPTER 5: ST. VINCENT

Physical Setting

St. Vincent—lushly forested on the flanks of its volcanic peak, Soufrière (soo-FRER)—together with the Grenadines is billed in some tourism literature as "the Caribbean you're looking for" (SVG Tourism Authority 2009). The interior landscape is steep and largely undeveloped. The coastline is urbanized in places—most notably the area surrounding Kingstown, the capital—but far from completely developed (Figure 5.1). St. Vincent's coastal road does not even travel the whole circumference of the island; such is the lack of development in the hinterlands.

Figure 5.1: A panoramic view of Kingstown harbor and the St. Vincent interior.

At the northern end of the Grenadines chain (Figure 5.2), the island of St. Vincent serves as the economic, cultural, and governmental hub of the nation (Figure 5.3). Many people living in the Grenadines refer to themselves with solidarity as "Vincentians" though both physically and culturally, the Grenadine islands are very different from St. Vincent. Physically, the Grenadines represent more of the stereotypical Caribbean island scenery: white sand beaches, crystalline blue water, and bright coral reefs (Figure 5.4) while St. Vincent's shoreline is steeper, rockier, and where beaches do exist they are usually made of dark, volcanic sand (Figure 5.5). Culturally, the Grenadines differ from St. Vincent in that they are less urbanized, with economies based primarily upon fishing and tourism.

Figure 5.2: Map of St. Vincent and the Grenadines, with inset map showing the country's location. Major islands and smaller islands mentioned in the text are labeled. Cartography by C. Duplechin, LSU Geography and Anthropology.

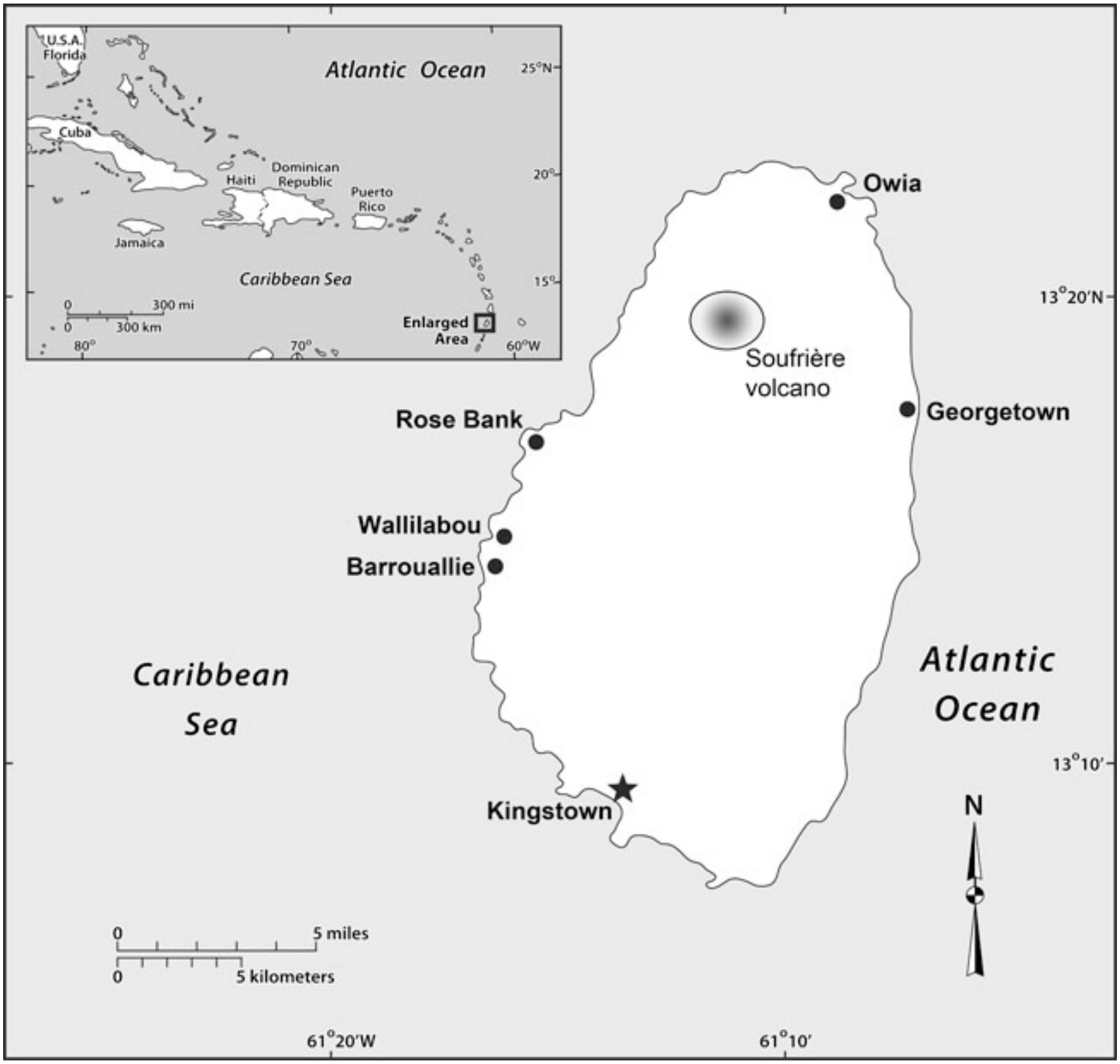


Figure 5.3: Map showing the island of St. Vincent with places mentioned in the text labeled. Cartography by C. Duplechin, LSU Geography and Anthropology.

Figure 5.4: Saltwhistle Bay on Mayreau, typical Grenadine scenery and popular yachting destination.

Figure 5.5: Owia Salt Pond, an example of the rocky St. Vincent coastline.

Owing mostly to these variations in the physical and cultural landscapes, the tourism industry focuses primarily in the Grenadines. In 2005, 132,456 visitors arrived at the two ports of entry on St. Vincent proper—the Arnos Vale airport and the port of Kingstown—an influx equal to 143 percent of the island's population. By comparison, 125,978 visitors arrived at Grenadine ports of entry (four airports and four harbor-based customs stations), 1,476 percent of the population of that region (SVG 2005). These numbers do not take into account the visitors who arrived at St. Vincent but immediately departed for the Grenadines, which is a common practice. If those visitors were counted, the disparity between St. Vincent tourism and Grenadine tourism would be even greater.

Agriculture is a more lucrative industry than tourism on St. Vincent itself (McElroy 2003). Bananas are the island's main export but other valuable agricultural commodities include plantains, eddoes, dasheen, rice, and flour (SVG 2005). Until the Second World War, St. Vincent was the world's leading producer of arrowroot starch (IIRC 1997). The banana industry on St. Vincent is operated on the model of contract farming and has historically relied upon preferential trading agreements with the United Kingdom (Grossman 1998). Recently, amid the trend toward free markets, St. Vincent banana growers have been exploring niche markets for "fair trade" bananas—a move that will ostensibly result in improved working conditions for the island's peasant banana field laborers.

The town of Barrouallie (BARE-ah-lee), where the majority of this research was conducted, lies on the leeward (west) side of St. Vincent (Figure 5.6). Its colorful houses are aligned within a small coastal plain or dot the hillsides above the bay. Fishing boats often lie moored in the bay or drawn up on to the beach—a reminder that fishing and whaling provide the majority of Barrouallie's income and that tourist visits are rare.

Figure 5.6: The town of Barrouallie, photographed facing north.

In 2005, the most recent year for which census data are available, the entire population of St. Vincent and the Grenadines was 100,746 (SVG 2005). The vast majority of the population, 92,211 (91.5 percent), live on St. Vincent itself—called “the mainland” in the government’s statistical reports—and the remainder, 8,535 (8.5 percent), live throughout the Grenadines (SVG 2005). The population of St. Vincent is moderately urbanized with 26.9 percent living in the capital, Kingstown, and its suburbs. The town of Barrouallie had a 2005 population of 5,048 (SVG 2005). The entire population of St. Vincent and the Grenadines increased from 1970 to 1991, followed by a decrease of about 5.2 percent between 2001 and 2005 (Figure 5.7). The trend of depopulation in the late twentieth and early twenty-first century, fueled mostly by labor-based emigration, was spread almost evenly throughout the country's thirteen census divisions, the only exception being the southern Grenadines, which gained ninety-one people (a 2.7 percent population increase for this region) between 2001 and 2005.

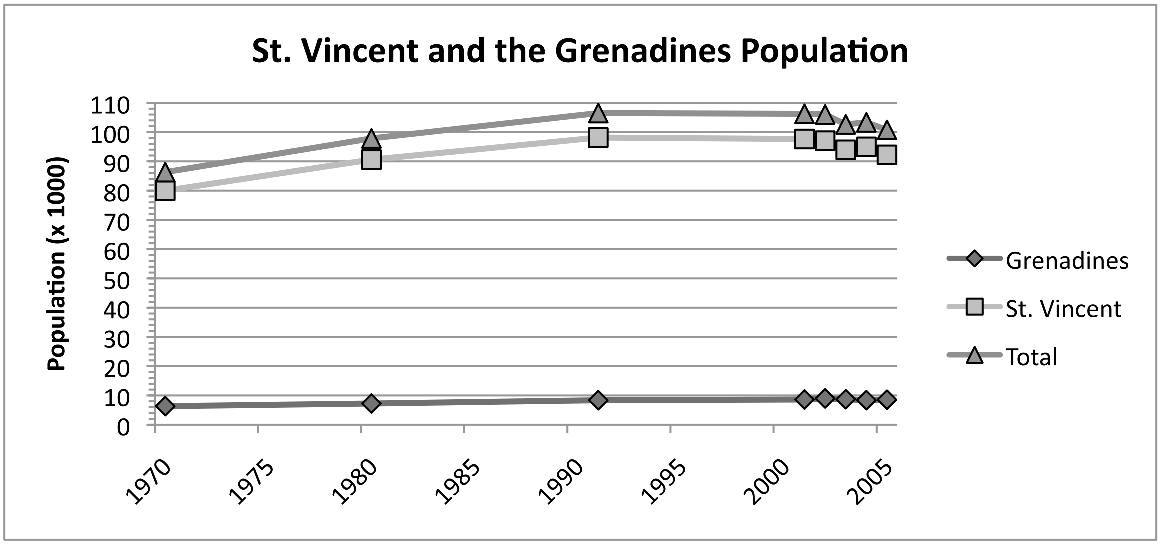


Figure 5.7: Population trends in St. Vincent and the Grenadines, 1970-2005. Sources: SVG 1998, 2003, and 2005.

<u>Land</u>

The insular Caribbean is divided into the Greater Antilles in the northwest and the Lesser Antilles in the southeast. One of Columbus' pilots testified that the Lesser Antilles "all lie in one cordillera [mountain range], extending from northwest to southeast" (Sauer 1966, 192), a description with which Sauer agrees.

Above the surface of the sea, lying at the subduction zone where the Atlantic tectonic plate slips beneath the Caribbean plate, this cordillera forms an arc of high volcanic islands of which St. Vincent is a part. A second arc, this one made up of low, non-volcanic islands, stretches from the Bahamas to Barbados, although the gaps between the islands of this chain are often much larger than those of the high volcanic islands. Westward, and bounded by the islands, is the Caribbean Sea. To the north and east of the island chain is the Atlantic Ocean. An active volcano crowns each major island from Saba in the north to Grenada in the south, with the exception of Barbados, the southernmost of the low islands. There have been twenty-five volcanic eruptions in the eastern Caribbean between 1780 and 2006 (Lara 2006). The deadliest was the 1902 eruption of Mt. Pelée on Martinique, which killed over 28,000 people. During this eruption, Soufrière on St. Vincent also erupted though the casualties did not exceed 2,000 because few lived on the north of the island, the site of the volcano. These simultaneous eruptions of neighboring volcanoes serve as a reminder of the long-known fact that "there are submarine communications between the burning mountains or volcanoes in each of [the islands]" (Anderson 1785, 30).

The last major eruption in the Caribbean was of Soufrière Hills in Montserrat in 1997. (Soufrière derives from the French *soufre*, meaning *sulfur*, and is a common name for Caribbean volcanoes). Only nineteen people perished, though the destruction was great. When I passed by Montserrat aboard a Nevisian fishing boat in 2008, over a decade after the eruption, I could see the ruins of the island's former capital, Plymouth—still uninhabitable. St. Vincent's volcano last erupted in 1979, claiming no lives but forcing the evacuation of over 15,000 people. All three of the twentieth century eruptions of St. Vincent's Soufrière—1902, 1971-1972, and 1979—have been described from geographical and geological perspectives (Anderson 1903; Flett 1908; Aspinall et al. 1973; Barr and Heffter 1982; Fiske and Shepherd 1982). While volcanic activity is absent from the Greater Antilles, earthquakes are common throughout the region; examples range from the 1692 earthquake that destroyed Port Royal, Jamaica (Watts 1987), to the 2010 disaster in Port-au-Prince, Haiti, from which survivors still are being rescued as I write (January, 2010).

In many ways, St. Vincent represents the typical volcanic Caribbean island. The island's highest point is the top of Soufrière at 1,234 meters (4,049 feet). The major rock type is volcanic basalt and soils are fertile (Watts 1987). Human populations are located primarily around the coast where land is not too steep to till or build upon. The interior is therefore mostly undeveloped and heavily forested.

Atmosphere

Situated at 13˚10' North latitude, St. Vincent's climate is purely tropical. Weather is typically warm and humid throughout the year with a rainy season from July to October. Hurricanes are an annual danger during the rainy season, but St. Vincent has often been spared when storms track north. Air temperatures are consistently warm, varying only 2.5˚C (1.4˚F) between the warmest and coldest months (Watts 1987). Indeed, on St. Vincent as on most of the mountainous Caribbean islands, air temperatures vary diurnally and with elevation much more than seasonally.

Variations in weather and temperature that do occur are due primarily to the influence of the northeast trade winds slightly changing their course as they blow toward the shifting intertropical convergence zone. These moist, energy-laden winds moderate the temperatures of the region and bring precipitation—especially at the mountain peaks and to the leeward sides of the islands owing to the orographic effect, by which air masses moving over mountains are cooled to the point that rain showers occur. Because many of the islands of the Lesser Antilles are small, the orographic precipitation that their mountains induce often falls over the sea to the lee (west) of the islands themselves. The equilatitudinal position of Barbados to the east of St. Vincent means that precipitation caused by Barbadian orography often falls on St. Vincent's windward (east) side (Watts 1987).

Ocean

Many of the high volcanic islands of the Lesser Antilles—St. Vincent included—continue their steep topography below sea level. Barely five kilometers (3.1 miles) offshore, one can find water depths exceeding 1,000 meters (3,281 feet). Fifteen kilometers (9.3 miles) offshore, the depth is 2,400 meters (7,874 feet). The feature toward which these undersea mountainsides slope is the Grenada Basin (Figure 5.8), a crescent-shaped trough between the leeward side of the Windward Islands arc and the Aves Ridge, which is a large rise on the ocean floor that protrudes above sea level in the north at Aves Island and in the south at Isla de Margarita—both possessions of Venezuela.

The underwater topography on the windward side of the island chain is not as steep as on the leeward side, though depths of 800 meters (2,625 feet) are measured as close as 12.5 kilometers (7.8 miles) offshore. Sauer's (1966, 192) reference to the Lesser Antilles as "a cordillera" is especially appropriate when considering the depths from which the mountain chain rises.

Sea surface temperatures throughout the Eastern Caribbean range from 25-29˚C (77-84˚F), showing only minor variation throughout the year (Watts 1987). However, given the depth of the waters to the west of the Windward Islands, and to a lesser extent, to the east, it is clear that the greatest temperature variation occurs with depth, rather than with season (Hill and Robinson 1962).

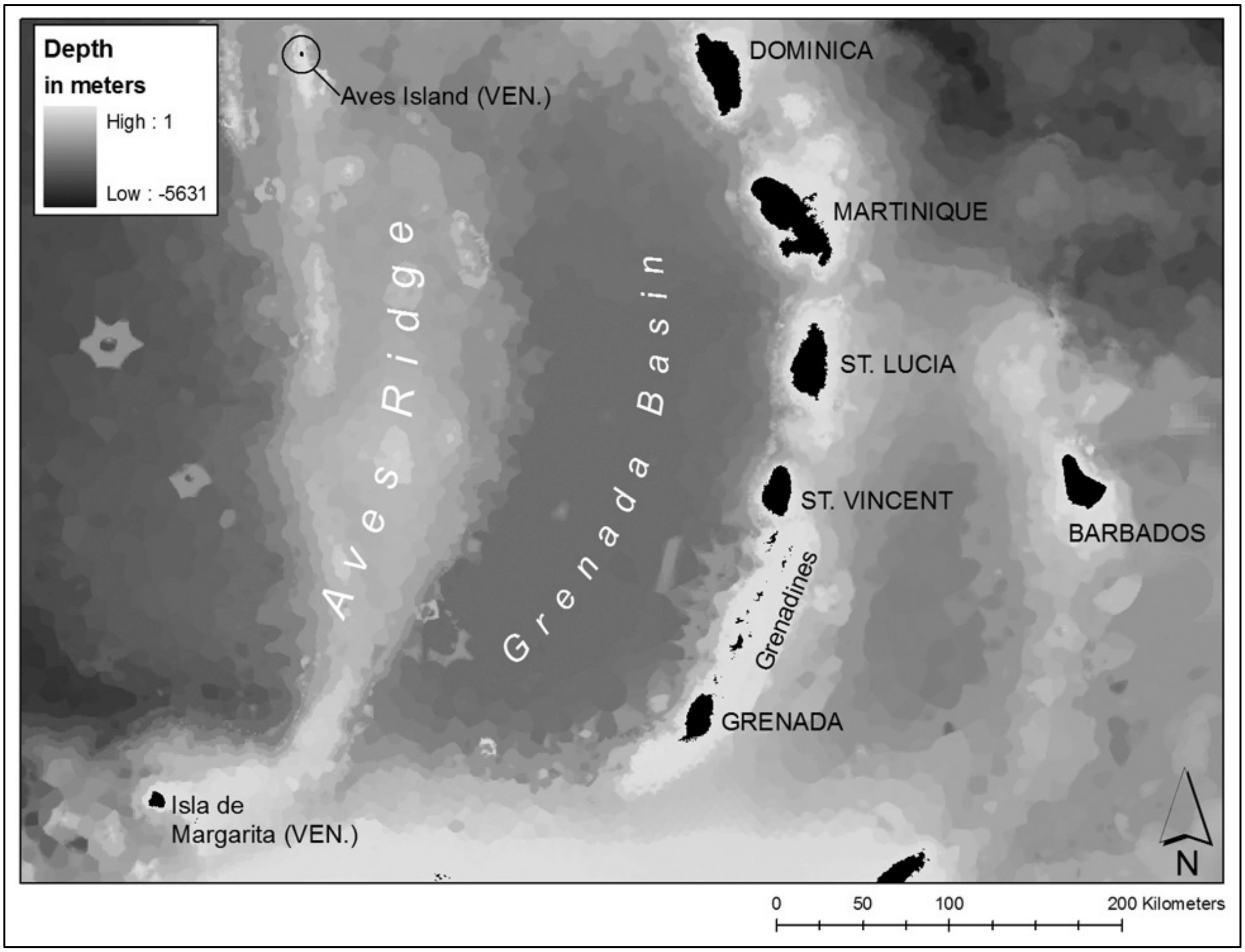


Figure 5.8: The Lesser Antilles from Dominica to Grenada, along with the oceanographic features to the west of the island chain.

Whales and other marine life can be found close to shore in this area, drawn by the richly productive, deep, turbulent waters. Research has found higher volumes of plankton (and associated higher trophic-level species) on the leeward side of St. Vincent than on the Windward side (Ingham and Mahnken 1966).

Seas generally approach St. Vincent from the east, moved westward by the meeting of the North and South Equatorial Currents—adjacent parts of the two great gyres of Atlantic Ocean circulation moving clockwise and counterclockwise, respectively (Reddy 2001). The combined flow of these currents enters the Caribbean Sea from the Atlantic through the various passages between the islands of the Lesser Antilles. The constriction of flow and bending of currents around the islands can cause fast-moving water and rough seas, as are seen locally in the passage between St. Vincent and St. Lucia, and to a lesser extent, in the passages between the Grenadines.

Historical Setting

The human history of St. Vincent, like most of the Caribbean region, tells the story of successive waves of immigration—both voluntary and forced—and displacement. The region's more recent history has emphasized decolonization and nation building. Caribbean human history can be divided into three broad categories: the pre-Columbian era, the era of colonization that began with European contact, and the period of post-colonial independence. Each shall be addressed and summarized here, followed by a history of whaling in the Caribbean in general and on St. Vincent in particular.

<u>Pre-Columbian Caribbean History</u>

In the section entitled "Pre-Columbian Ecology," in his regional geography of the Caribbean, Bonham Richardson (1992, 20ff) paints the picture of a much different Caribbean environment than presently exists. Prior to the arrival of the first humans, the islands were heavily forested and richly populated with diverse faunal assemblages. The earliest evidence of human inhabitation of the Caribbean islands is between 6,000 and 7,000 years ago (Carlson and Keegan 2004; Fitzpatrick and Keegan 2007). These first islanders settled primarily throughout the larger islands of the Greater Antilles (Rouse 1986 [cited in Richardson 1992]) and are thought to have come from Mesoamerica. Later, approximately 4,000 years before present, the southern islands of the Antilles began to be inhabited by people migrating from the Orinoco Basin of South America (Fitzpatrick and Keegan 2007).

These first Caribbean islanders were almost completely supplanted by the arrival of agricultural groups from the South American continent. The people who made this migration have traditionally been divided into two categories: the Arawaks and the Caribs. However, neither of these groups was homogenous, both were made up of several subcultural groups, and the distinction between Arawaks and Caribs has been critiqued. For example, Richardson (1992, 22) held that the Arawak-Carib dichotomy is predominately retrospective and depicts the influx of the two groups as “a single population migration” at the beginning of the Common Era. This single population evolved or divided into two groups geographically, linguistically, and from a subsistence perspective. Watts (1987) took the more traditional view that the Carib migration from South America followed the Arawaks and, owing to the Caribs’ more warlike nature, involved an aggressive displacement of Arawaks by Caribs in the southern islands.

Whether they migrated together or successively, the Arawak and Carib populations spread throughout the insular Caribbean. Arawak populations settled the Greater Antilles and the Bahamas where they subsisted mainly on cultivated crops. The Caribs inhabited the Lesser Antilles where they farmed to some extent but relied more upon fishing. Both groups modified the natural environment through the introduction of plant and animal species, *conuco* (slash-and-burn) agriculture, and their built environments (Fitzpatrick and Keegan 2007).

<u>Contact and Colonization</u>

The size of the human population and status of the natural environment in the Americas at the time of Columbus’ arrival in 1492 has been vigorously debated by scholars including geographers (Spinden 1928; Rosenblat 1954; Butzer 1992, 1993; Denevan 1992; Whitmore and Turner 1992). Less debated is the fact that, beginning with the arrival of the Spanish in the late fifteenth century, and accelerating as the region was occupied by multiple European powers, both the aboriginal population and environment were quickly and disastrously diminished and degraded. As monocropped sugarcane replaced the variegated conuco fields and Spanish-imported livestock trampled the kitchen gardens and native savannas, the aboriginal population of the Caribbean islands was violently reduced to scattered remnants. The rapid decline of the native population was due to famine from the taking of agricultural lands, overworking in newly opened gold mines, outright murder, and, most of all, introduced diseases.

The reduction of the native population was less rapid on St. Vincent than nearly anywhere else in the Caribbean. This was due, in part, to the establishment of St. Vincent and nearby Dominica as refuges for Caribs who were driven from their lands on other islands (Young 1993). In 1635, the Carib population on St. Vincent was augmented by the arrival of African slaves, survivors of two ships that wrecked on the shores of St. Vincent (Gonzales 1983; Matthei and Smith 2008; Smith 2008). There is some historical uncertainty regarding these shipwrecks. The museum in Fort Charlotte, above Kingstown, St. Vincent, depicts a single shipwreck that occurred in 1675 on the shores of Bequia—the northernmost Grenadine Island—and portrays the survivors as "later ma[king] their way to St. Vincent, where they were welcomed and accepted by Carib Indians living there." Regardless of the details of their initial arrival, the Africans assimilated into the Carib culture, adopting such traits as dress, diet, burial traditions, and the flattening of their infants' foreheads (Matthei and Smith 2008). The descendents of the Africans and Caribs came to be known as the "Black Caribs" on St. Vincent (later called Garifuna or Garinagu after their removal to the Central American mainland) and gained a reputation for the tenacity with which they defended their land from the incoming colonizers (Kirby and Martin 1982).

The Black Caribs of St. Vincent vigorously opposed European attempts at settlement (Marshall 1973). Late in the seventeenth century, the French became the first Europeans to settle on St. Vincent, the island that was called *Hairoun* (hy-ROON) by its native peoples, but had been renamed by Columbus when he sighted it on St. Vincent's Day—22 January 1498. The French based themselves at Barrouallie and began farming the adjacent valleys and hillsides. Many place names, especially on the windward side of the island, retain the mark of French influence. The French obtained lands from the Caribs in exchange for arms (Young 1993). Clearly this concession was a calculated measure, on the part of the Caribs, to acquire the means to further defend their land, even if it meant giving up a portion of it.

Throughout the eighteenth century, St. Vincent changed hands between the French and the English several times. The Black Caribs occasionally sided with the French, who continued to provide them with arms, often via Martinique or St. Lucia. However, Young (1993) made clear that although the French had settled more amicably than the British, the role of the former in the Carib resistance movement was primarily that of weapons-supplier. The Caribs opposed settlement of the island by both European powers:

> French assistance to the Black Caribs was clearly no more than a supplement to Carib-initiated opposition to all European incursions in St. Vincent. The British were the main land seekers and displayed greater political and military presence than the French, and against them the Black Caribs became increasingly hostile, assisted by the French but driven by their own determination to hold on to their rights to possession of land… [T]he Caribs opposed the power of both the French and the British in St. Vincent. (Young 1993, 24, 31)

By the late eighteenth century, the British had suffered local defeats in several battles with Carib forces. The Carib chief, Chatoyer—still renowned in St. Vincent today—was killed in March 1795. Following Chatoyer's death, the Caribs intensified their assault on British garrisons during the rest of that year and into 1796. It became increasingly clear to the British that cohabitation would be impossible.

On St. Vincent, arguably more than any other Caribbean island, the main threat to British settlement came from the indigenous inhabitants rather than from pirates or the competing European colonizing nations. To this day, the cannons at Fort Charlotte point inland, rather than out to sea—a reminder of how the British prioritized the threats to their defense of the island (Figure 5.9).

Figure 5.9: Cannons point inland at Fort Charlotte, above Kingstown, St. Vincent.

In June 1796, the war took a final, decisive turn. Reinforced by nearly 4,000 troops, the British destroyed the means of livelihood for many Caribs: their houses, gardens, and canoes. Weakened and demoralized, in late 1796 the son of Chatoyer declared surrender to the British. By October, 4,338 Caribs—men, women, and children—had been captured and placed temporarily on Balliceaux, a Grenadine islet between Bequia and Mustique. Those that remained on St. Vincent were too weakened, fragmented, and demoralized to present any future threat to the British possession of the island. Over half of those captured died during their three-month interment on Balliceaux; the rest were deported to Roatán, an island off the Caribbean coast of Honduras. From Roatán, the deportees—the *Garifuna* (or *Garinagu*, more correctly) as they came to be known—crossed to the Honduran mainland and spread along the Caribbean coast of Central America (Davidson 1980).

Once finally under British control, St. Vincent joined the collectively governed colony known as the Windward Islands. Since 1671, the British had divided their Caribbean holdings into two colonies with the French colony of Guadeloupe as the dividing line. To the north of this line, Montserrat, St. Christopher (St. Kitts), Nevis, Antigua, Barbuda, Redonda, Anguilla, and the British Virgin Islands were known as the "Leeward Islands." South of Guadeloupe, Dominica, St. Lucia, St. Vincent, the Grenadines, and Grenada were known as the "Windward Islands" (Ward 1918). Of course the British naming does not imply that the British maintained control over all the islands at all times, as has been shown for St. Vincent in particular. The political arrangement within the Windward Islands was such that the Governor of the entire colony was based in the nearby British colony of Barbados with a Lieutenant Governor on each of the major islands (Martin 1834). The name *Windward* implies exposure to the elements and *Leeward* implies shelter, but in fact each of these islands has a windward, Atlantic side whence comes most of their weather, and a leeward, Caribbean side where calmer seas are often found. St. Vincent is centrally located within the Windward Islands.

With the defeat of the indigenous resistance by the colonialists, St. Vincent's historical trajectory joined the larger Caribbean pattern: plantation agriculture powered by slave labor. Even after slavery was abolished in 1834, the exploitation of freed blacks and newly arrived

Portuguese immigrants continued for the provision of labor on smallholder agricultural lands. Eventually, the economy would come to be based primarily upon the production of bananas, which were sold to the British market at preferential prices (Grossman 1998). The Vincentians were still a colonized people.

Post-Colonization and Independence

The British colonial arrangement lasted until 1958 when the British Windward Islands Federation was dissolved and the West Indies Federation was formed—the goal being to establish a regional colonial government that would lead to independence for each of the larger islands with its dependencies (Kaufman 2005). This federation lasted only until 1962 when Jamaica and Trinidad and Tobago, both of which had seceded from the British Empire the previous year, each declared independence within the British Commonwealth. Though it was short-lived, the West Indies Federation was documented as a "new nation" by geographer David Lowenthal (1961) in his contemporary monograph on the subject. The departure of the largest, richest, and most influential islands of the region from the Empire led to the quick dissolution of the entire regional government (Kaufman 2005). St. Vincent and the Grenadines became an independent state within the British Commonwealth in 1979.

Before, and especially since independence, intellectuals from St. Vincent and the Grenadines have emphasized the need for nation building and the recognition of the African influences present in Vincentian culture. Young (1993) cites the recognition of St. Vincent Creole as a legitimate language and the incorporation of Carib themes into the national carnival, *Vincy Mas* (an abbreviation of *St. Vincent Masquerade*), as major signifiers of the Vincentians' "search for their culture."

The government faces several contemporary issues. Foremost in Vincentian political discourse today is the issue of marijuana replacing bananas as the nation's primary cash crop, a trend that began when the preferential prices for latter crop were removed in the late twentieth century (Gonsalves 2009). According to the U.S. State Department (2009), St. Vincent is the largest marijuana producer in the Eastern Caribbean. The government of St. Vincent and the Grenadines joined the United States government in condemning this enterprise. The two nations collaborate in destroying marijuana cultivation operations, which are prevalent along the undeveloped northern slope of Soufrière. In his public address at the *Fisherman's Day* festivities in 2009, Vincentian Prime Minister Ralph Gonsalves issued a plea to the marijuana growers to "come down from the mountain." The term, *the mountain*, is used colloquially as a euphemism for the marijuana fields located in the island's rugged and roadless northwest. The Prime Minister urged these men to seek honest employment, specifically mentioning possibilities in the fishing and artisanal whaling industries. He offered government assistance in training and provision of capital for the latter occupations but did not specify a program by which this aid would be given.

Thus, whaling has become a national issue in the context of its potential to provide legitimate work to impoverished Vincentians who may otherwise turn to illicit occupations. Jennifer Cruickshank-Howard, Senior Fisheries Officer in the Fisheries Division said that the Chief Fisheries Officer would like to see an expansion of St. Vincent's artisanal whaling operation—accommodating possibly ten or twelve more boats. While St. Vincent and the Grenadines' IWC aboriginal whaling quota—the only one issued to a tropical nation—only relates to the Bequia humpback operation, the preservation of whaling rights takes on national significance because of the historical ties between the IWC-sanctioned Bequia operation and the artisanal whaling operation on St. Vincent itself.

Whaling History

Geographers have shown that, prior to 1492, the New World was no pristine landscape, free from the mark of human agency (Butzer 1992, 1993; Denevan 1992; Earle 1992; Whitmore and Turner 1992). The same is true of pre-contact seascapes. Early Caribbean peoples exploited local marine and nearshore fauna for food and other purposes, sometimes leading to the severe reduction or even the extirpation of certain animal populations (Jackson 1997; Carlson and Keegan 2004; Fitzpatrick et al. 2008), though the region-wide impact of marine resource exploitation is currently undergoing vigorous debate (Baisre 2010b; Butler 2010; Curet 2010; deFrance 2010; Fitzpatrick 2010; Jones 2010; Keegan 2010; McClenachan et al. 2010) catalyzed by Julio Baisre's (2010a) assertion that pre-Columbian Caribbean peoples lacked the technology to access and extirpate large numbers of most Caribbean fish populations. While the ecological effects of ancient Caribbean fishing are by no means fully understood, the importance of these marine resources to subsistence throughout the pre-Columbian Caribbean is not debated.

In addition to their reliance upon fishing and shellfish gathering, pre-Columbian and early colonial-period Caribbean peoples exploited local marine mammal populations for food from many islands and several areas of the Caribbean mainland (Sauer 1966; Nietschmann 1973; Wing and Reitz 1982; McKillop 1984, 1985; Watts 1987; Romero and Hayford 2000; Romero et al. 2002; Romero and Cresswell 2005). Whales and dolphins are known to strand upon Caribbean beaches (Caldwell et al. 1971; de la Osa and Gamau 1971; Abend and Smith 1999; Mignucci-Giannoni et al. 2003). It is logical to assume that early Caribbean peoples made use of stranded animals and may have occasionally hunted whales, dolphins, manatees, and seals actively.

This legacy of early exploitation of cetaceans and sirenians to today's Caribbean whalers is not continuous. The modern-era Caribbean whaling communities trace their history to the late eighteenth century when American whaling ships, based primarily in New England and known as "Yankee Whalers" began visiting the islands of the Lesser Antilles in search of their catch (Adams 1971; Price 1985; Ward 1988). The primary target species of the Yankee Whalers were the humpback (*Megaptera nodosa*) and the sperm whale (*Physeter catodon*). However, they often took short-finned pilot whales for meat to feed the crews and to give novice harpooners a chance to practice their skills (Mitchell 1975; Reeves and Smith 2006).

The geographer John E. Adams (1971) summarizes the history of whaling in the Caribbean as gradually moving from abundance during the eighteenth century to declining catches in the late nineteenth century. After 1870, as American seamen increasingly began to turn down crew positions aboard Caribbean-bound whaling ships, owing to the reduced profitability of the voyages, they were gradually replaced with local men, "half castes from all parts of the West Indies and of Central America" (Brandt 1940, 54 [cited in Adams 1971, 56]). Gradually, Caribbean whaling came to be dominated by local labor.

One of the local seamen who joined a Yankee Whaling crew was William Thomas Wallace, Jr., a Bequia-born man of Scottish descent. After participating in whaling voyages that took him across the Atlantic to Africa and north to Massachusetts, Wallace returned to Bequia having had his life enriched in two ways by the Yankee Whaling industry: through learning the skills necessary to start a locally-run whaling industry, and by the acquisition of a wife—Estella Francis Curren, a whaling captain's daughter (Adams 1971; Ward 1995).

Wallace established a local whaling operation at Friendship Bay, Bequia (BECK-way) to fill the niche left by the decreasing presence of the Yankee Whalers (Ward 1995). While humpback catches had not been sufficiently profitable to justify the long, costly voyages that the Americans had been undertaking, enough whales did remain to support a local operation. Adams (1970) mentions the coincidence of the rise of locally managed whaling opportunities with the decline of local cash-crop agriculture, indicating increased incentive for local subsistence populations to turn to the sea for their livelihoods. In the mid-1880s, Wallace joined with another Bequian, Joseph Ollivierre, to expand their island's whaling industry. These two families—the Wallaces and the Ollivierres—came to dominate the entire history of Bequia whaling, first as partners and later as rivals (Ward 1995).

Local whaling began to spread from Bequia throughout the Eastern Caribbean as it proved profitable. Between 1870 and 1925, local Caribbean whalers established many more stations throughout the Lesser Antilles. By collating the historical geographies of several leading researchers, one arrives at the following list of eighteen early twentieth century Eastern Caribbean whaling stations (see maps, Figure 5.10 and Figure 5.11). The first station was on Wallace's land on the western shore of Friendship Bay, Bequia. Locations of subsequent stations were Petit Nevis, Semple Cay, Prune Island, Frigate Rock, Pigeon Island, Grenada, Île de Caille, Isle Saline, Monos Island, two each on Barbados and Canouan, and four more on Bequia (Adams 1970, Caldwell and Caldwell 1971, Price 1985, Scott 1995, Ward 1995). One researcher cites an undated, popular source to say that Bequia "boasted a dozen land-based whaling stations" (Price n.d. [cited in Scott 1995, 20]). However, given Bequia's small size—18 km^2—and the fact that the cited author does not repeat his claim in his more academic piece (Price

1985), we can be confident in our skepticism and remain with the more traditional count of five Bequia whaling stations.

During the same time period, there was also a Norwegian shore station on Glover Island, Grenada, which does not follow the same history as Bequia-influenced whaling stations (Price 1985). There also existed a series of whaling stations in Trinidad that predate the establishment of American-influenced whaling operations in Bequia and beyond (Romero et al. 2002; Romero and Cresswell 2005). These Trinidadian whalers were associated with Bermudian—and later German—whalers rather than Americans, thus their history follows a separate trajectory than that of the Bequia stations. There remains some disagreement in the literature as to whether the station at Monos Island, Trinidad, should be included within the Bequia lineage or not (Adams 1973; Higman 1973; Reeves 2002). Most accept, however, that Bequia was the entrepôt through which local whaling entered the Grenadines, and thus the direct source of knowledge for today's artisanal whaling at Barrouallie, St. Vincent.

The primary target of Bequia and Bequia-influenced whalers was the humpback, although sperm whales were occasionally taken (Adams 1971). The whaling station employees processed the whales for meat and oil, then sold the meat for local consumption in the Grenadines and exported the excess to St. Vincent. During the early twentieth century, humpback whales—a migratory species—became very rare in the Caribbean because of overhunting, both locally and worldwide. All of the humpback whaling operations ceased by 1925, save one at Bequia (Adams 1971; Ward 1995). The Olivierre family has maintained the only whaling operation on Bequia from 1925 until the present.

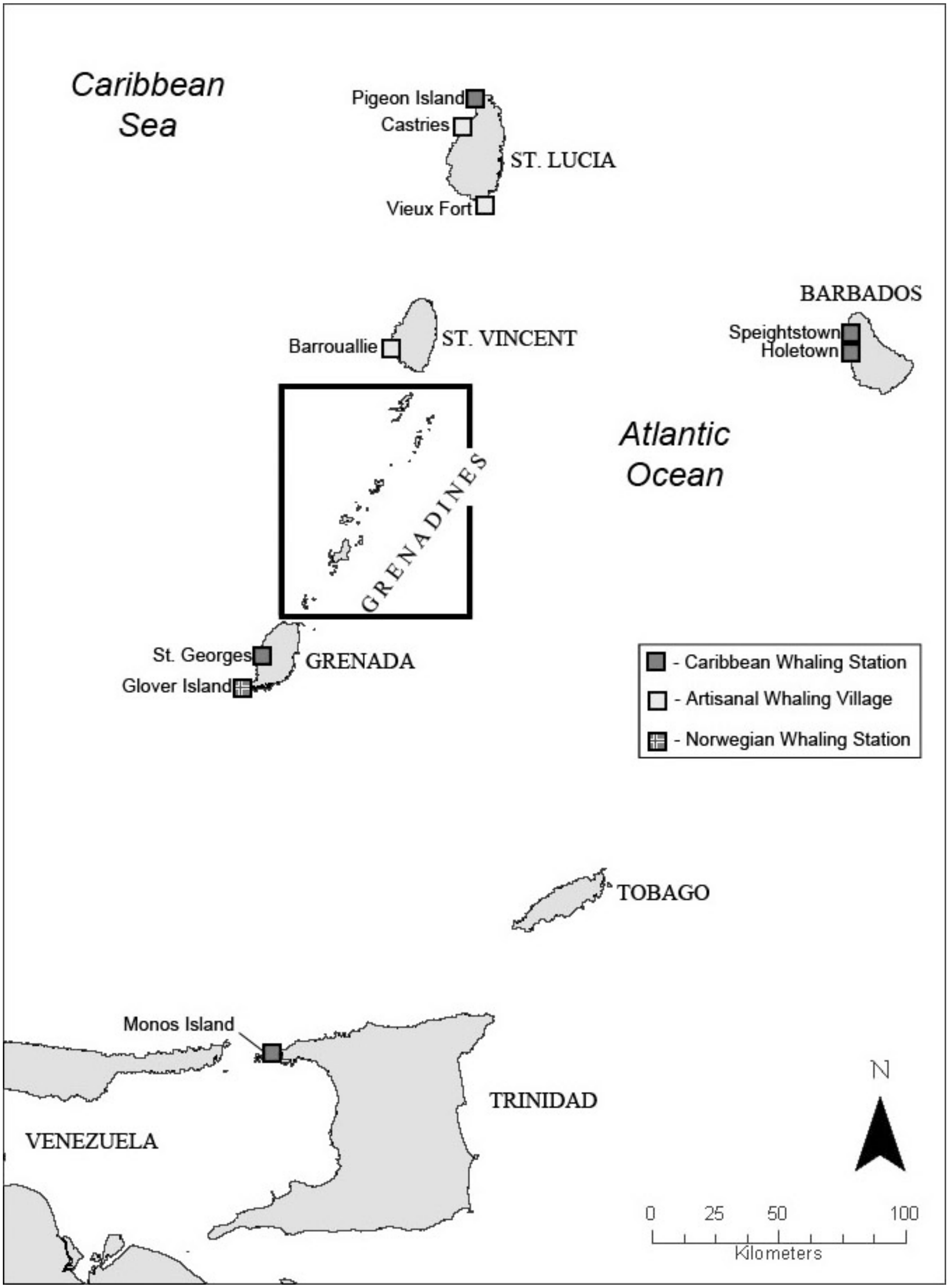


Figure 5.10: Map of the Southeastern Caribbean islands with their historical whaling stations (1870-1925). See Figure 5.11 for inset map of the Grenadines.

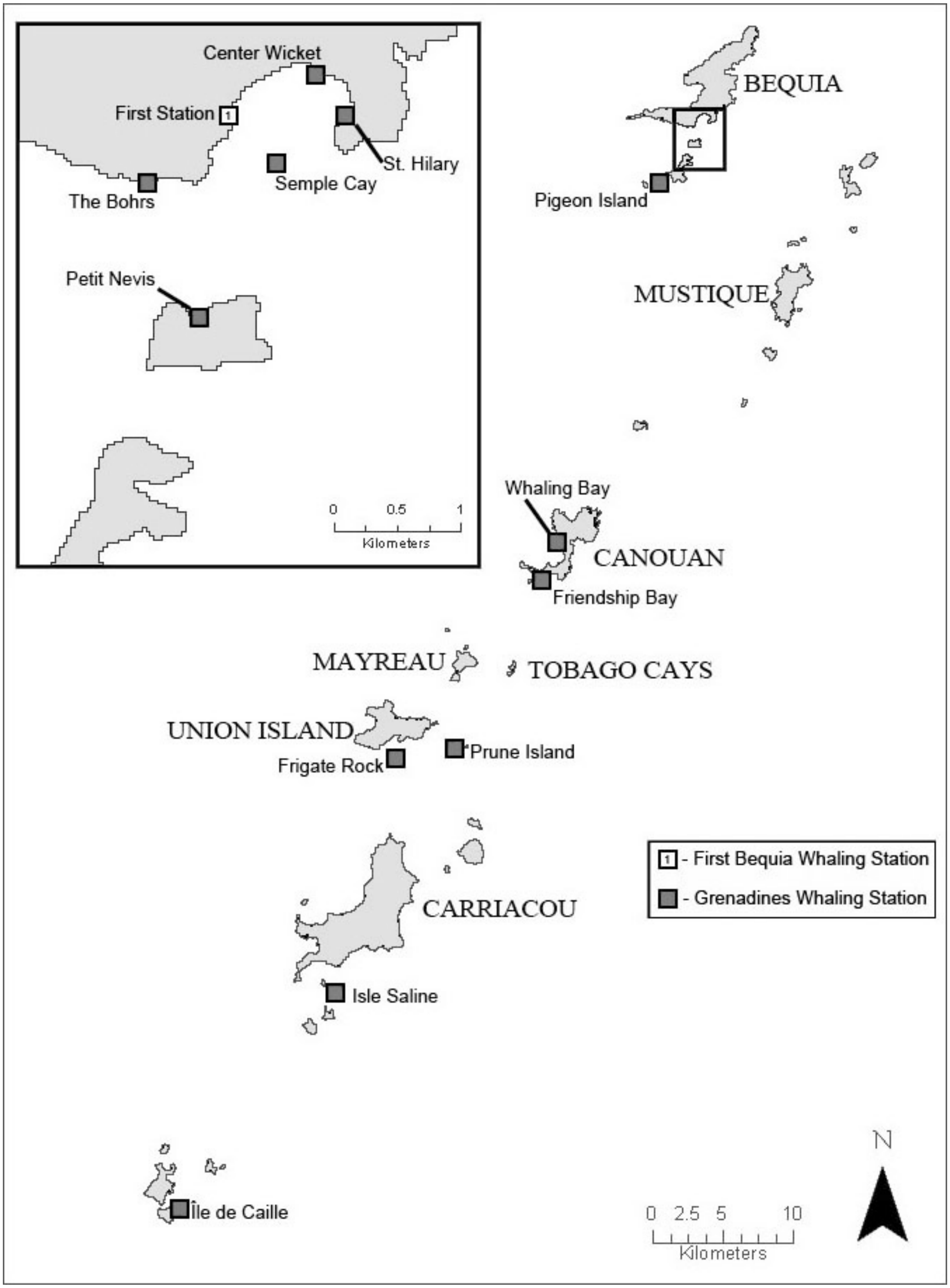


Figure 5.11: Map of the St. Vincent and Grenada Grenadines, with their historical whaling stations (1870-1925), with inset map of Southeastern Bequia and islets.

In 1986, the International Whaling Commission, to which St. Vincent and the Grenadines is a signatory country, implemented its moratorium on commercial whaling. However, because of the long tradition of whaling on Bequia, a quota of three humpback whales per year was permitted under the Aboriginal and Subsistence Whaling exception to the moratorium (Hamaguchi 2005; International Whaling Commission 2009a). In 1993 the IWC reduced the quota to two whales per year. Whaling on Bequia continues to this day with one station still operating from the islet of Semple Cay (Figure 5.12). The two whales per year are a maximum allotment and not a guarantee. As the Chief Fisheries Officer explained to me in 2009, "Sometimes we don't get two. Sometimes we get none."

Figure 5.12: The only remaining Grenadine humpback whaling station, at Semple Cay, just offshore from Bequia. Photograph © Andrew Fielding, used by permission.

By the early twentieth century, at the same time that humpback catches were declining, fishermen from the leeward villages of Barrouallie, St. Vincent, and Castries, St. Lucia, had begun to hunt small cetaceans—pilot whales and a variety of dolphin species—which were still abundant (Price 1985; Scott 1995). In St. Vincent, it is probable that the motivation to begin hunting small cetaceans was driven by the reduced supply of whale meat available for import from the Grenadines (Price 1985). The St. Lucia case is not so clear because this operation for small cetaceans seems to have been started before the humpback catches in the Grenadines began to decline. Had the St. Lucian whaling industry experienced a decline in humpbacks earlier than the Grenadine stations? If so, perhaps fishermen from St. Lucia began hunting small cetaceans to fill the niche, both economic and culinary, left by the unavailability of this locally produced humpback whale meat. The timing of the commencement of the St. Lucia small cetacean hunt does seem to precede the decline in catches at the Grenadine whaling stations by at least three decades. Or, perhaps St. Lucian fishermen who had not previously been whalers began targeting dolphins and pilot whales—both easier to catch and more plentiful than humpbacks—to garner for themselves a share of the market for marine mammal meat already established by the humpback whalers. In either event, by the end of the nineteenth century, a modest effort targeting a variety of dolphin species had begun at Castries, St. Lucia. By 1910, the small cetacean operation at Barrouallie, St. Vincent, had begun as well.

The connection between the whaling communities on St. Vincent and St. Lucia goes beyond mere coincidence of origination. Whalers from Barrouallie often take whales from within St. Lucia's territorial waters (Cecil 1972 [cited in Mohammed et al. 2003]). Additionally, while the Castries small cetacean operation seems to have begun independently of Vincentian influence, there exists documented transfer of knowledge, equipment, and personnel from the whaling communities at Barrouallie to Vieux Fort, St. Lucia, where another pilot whaling operation has existed for decades, though today only in the form of opportunistic whaling, meaning that cetaceans are not the main target, but fishermen will take them if the opportunity arises (Gaskin and Smith 1977; Price 1985; Scott 1995). Pilot whale meat and blubber from St. Vincent is exported to be sold in St. Lucia (Scott 1995), though without a permit, these sales are in violation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1973).

Barrouallie whaling was primarily opportunistic until the early 1930s when Griffin Arrindell, a local fisherman, purchased two Bequia-built whaling boats (themselves modeled after the Yankee whaleboats from the nineteenth century) and began regularly, actively, and directly hunting small cetaceans. Adams (1994, 65) cites Arrindell's mentors as "some old-timers at Barrouallie and Saint Lucia who had periodically hunted dolphins." This further supports the existence of loosely organized, opportunistic small cetacean operations in both St. Vincent and St. Lucia prior to the establishment of the directed pilot whaling operation at Barrouallie.

From the 1930s until today there have been two major changes in the technology employed by Barrouallie whalers: the motorboat and the gun-harpoon. From the beginning of the operation, a harpoon virtually identical to the ones used by Yankee Whalers was thrown, or in some cases, skipped across the water surface, at the targeted cetacean as it rose to breathe (Caldwell and Caldwell 1971).

The date of the introduction of the gun-harpoon is not clear. Caldwell and Caldwell (1971) cite both 1946 and 1967. Scott mentions several attempts to perfect the harpoon gun taking place between 1946 and 1951. Another researcher cites the introduction of a gun harpoon stand mounted on the foredeck of whaling boats in 1962—the year with which one of my older informants agree (Hamaguchi 2002; Philip Charles, retired Barrouallie whaler, personal communication). Another local informant for this research remembers shifting to the gun-harpoon in the 1980s. In 1965 when Adams (1973; 1994) was conducting his geographical fieldwork, he dates the introduction of the harpoon gun—in use on whaling voyages in which he participated—at 1958 and interestingly traces its source to St. Lucia. Additionally, a 1968 photograph included in Caldwell and Caldwell's (1971) first paper on the Barrouallie operation clearly shows a harpoon gun mounted in the bow of a whaling boat. Perhaps the various dates given reflect a gradual shift from hand-harpoons to gun-harpoons. In fact, it has been my observation that hand-harpoons are used more frequently than gun harpoons even today because of their better accuracy and the cost of gunpowder. Further supporting the notion that the gun was introduced gradually, a gun license is difficult to acquire in St. Vincent and must be held by any whaler wishing to use a gun-harpoon. The license costs EC$250 (US$93) per gun, per year, and is only given to *bona fide* whalers who have completed the appropriate paperwork (see Appendix D), have no prior convictions and, according to the St. Vincent police officer with whom I spoke, are deemed to be "of good character."

The boats used by Barrouallie whalers and fishermen alike shifted from sail power to inboard diesel engines and outboard two-cycle gasoline engines during the 1960s (Mohammed 2003). At the time of Adams' (1994, 67) 1964 fieldwork, "dramatic and costly plans were being made to install inboard and outboard engines" but the boats were still powered solely by sails. Then in the early 1980s, Price (1985, 415) found the boats to be "sail powered with auxiliary [inboard] diesel or outboard [gasoline] engines." By the early 1990s, when Adams made a return visit and Scott was conducting his thesis research, all of the boats were equipped with outboard gasoline engines, as they are today (Adams 1994; Scott 1995). It is interesting to note that the humpback whalers from Bequia continue to use sailboats exclusively. This was explained to me as essential to maintain the quota given by the IWC for aboriginal and subsistence whaling. The IWC does not actually require aboriginal subsistence whalers to refrain from using engine-powered vessels but the whalers of Bequia perceive this lack of technological advancement as working to their advantage in keeping their quota year after year.

Fleet size has declined steadily throughout the history of Barrouallie's whaling operation (Figure 5.13). Today only one boat hunts cetaceans full-time. There are three other boats with harpoon-gun mounts but these go out only occasionally—"only after I sight the whales," claims the owner of the full-time boat. Additionally, an unknown number of fishing boats from Barrouallie and other villages carry hand-harpoons to be ready to make opportunistic catches in the event that cetaceans are encountered while fishing.

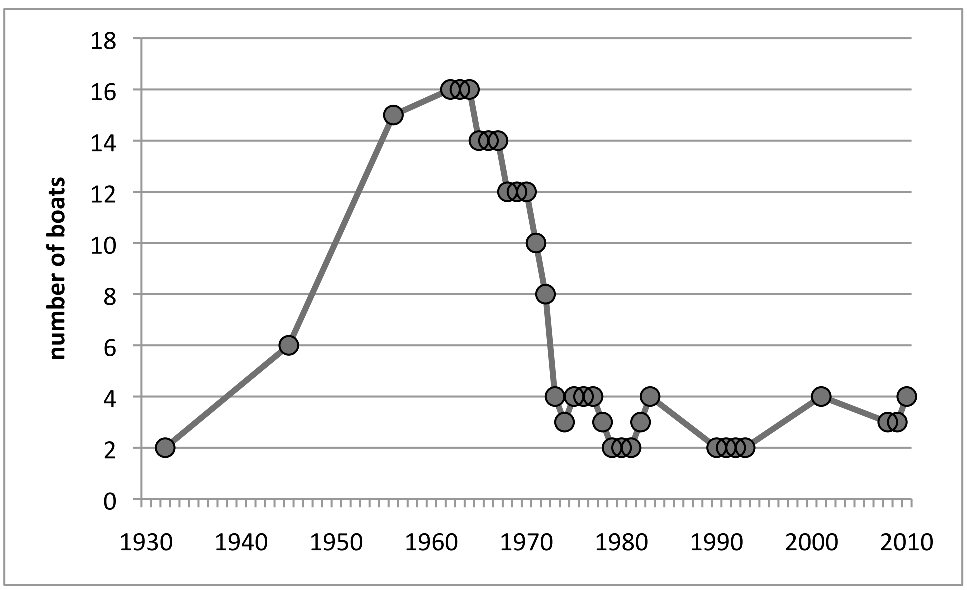


Figure 5.13: Graph showing changes to the size of the Barrouallie whaling fleet from 1932 to present. Sources: Caldwell and Caldwell 1971, Price 1985, Adams 1994, Scott 1995, Hamaguchi 2002, and personal observations during 2008, 2009, and 2010.

In addition to the two major technological changes, there exist two main areas of cultural change with regard to whaling in Barrouallie over the last half-century or so. The first of these is the decline of shanty singing, followed by a renewed interest in this tradition and its construction as a piece of folk cultural heritage. The second is the establishment and tumultuous history of a cooperative fisherman's society in Barrouallie. Today the shanties have ended and the current iteration of the cooperative society struggles against debt and negative perceptions among the community.

Sea Shanties

Shanties (alternatively spelled *chanties* or *chanteys*) are working songs sung by seamen (Hugill 1961). They primarily served two purposes aboard ships: providing a rhythm by which men could synchronize their physical labor such as the raising of sails or hauling anchors, and offering a pleasant diversion from the tedium of shipboard life. The American folklorist Roger Abrahams (1974, 74-76) cites specific songs that were associated with specific events aboard a whaling boat: the harpoon strike, hauling in a whale, rowing home. He also cites certain prescribed periods of silence, such as when a whale had been harpooned and was hauled within "fifty or sixty yards" of the boat, in order to keep from frightening the whale and causing it to dive. On shore the whalers would sing shanties extolling their own strength in dealing with the perils of whaling, or parodying or calling out the boat owners, vendors, and public for their stinginess (Abrahams 1974; Lanier and Reid 2007).

Many shanties followed a call-and-response structure by which the leader (called the *shantyman*) would sing a line, followed by the sailors who sang a line in response or a repetitive chorus. In the context of Barrouallie whaling, shanties served two main practical purposes: to provide a rhythm that kept the men in time while rowing or hauling, and to alert community members onshore of a successful catch and to request their help in the hauling and processing work that would soon follow (Lanier and Reid 2007). As Lanier and Reid point out, many of the shanties follow the same line of transmission as whaling practices themselves: from New

England to Bequia to Barrouallie. Of course some of the songs were adapted along the way. As such, the shanties often contain lyrics about places known to Yankee Whalers, but that would have seemed exotic to the Vincentians—Alabama, Baltimore, Bermuda, Calais, and Dover—as well as some that would have been more familiar—the neighboring villages of Rose Bank and Wallilabou, and the Grenadine islands of Bequia where they learned the whaling skills, or Mayreau where they bought their salt.

During the 1960s and 1970s, changes both cultural and technological led to the decline and eventual abandonment of the shantying tradition in Barrouallie. As boat owners began to replace their oars and sails with inboard and outboard engines, the need for the crewmembers to work in rhythm with each other disappeared. Along with the need for keeping time, so went the time-keeping shanties.

The other practical use for shanties—to alert community members on shore that a catch had been made and help would soon be needed—declined as the shanties proved too effective. That is, crowds larger than necessary began to arrive at the shore where whaling crews unloaded their catch, offering to help and demanding to be compensated. At first, whalers incorporated new shanties into their repertoire that spoke directly to the excessive and demanding crowds that had been turning up at the beach for a free share. Consider, for example, the following lines from the shanty, "Bear Away Yankee":

Who na been off,
Na come a bay.
If you want de liver you have to buy.
If you want de guts you have to buy.

Lanier and Reid (2007, 77) cite these lyrics along with their translation to standard English that "whoever hasn't gone out [whaling], don't come to the bay," and "that the whalers expected payment for even the most undesirable parts of the catch." These new, critical shanties were not sufficiently effective against the demanding crowds and the whalers soon abandoned the notion of broadcasting news of their catch and shanties altogether. Today, with the availability of mobile telephones, crews can be selective with whom they choose to inform about their whaling success and there is no more practical need for announcement shanties.

In 2001, Reid and Lanier instigated a renaissance of interest in the Barrouallie whaling shanties. At their suggestion, a group of eight former whalers formed a singing group called The Barrouallie Whalers (Reid and Lanier 2001; Lanier and Reid 2007). This group first began performing locally in 2002 and later, internationally. To date, the Barrouallie Whalers have performed in St. Vincent and the Grenadines, the United States, the Netherlands, and France, and have been featured on one compilation album of sea shanties. Through this group, the tradition of shantying remains alive on St. Vincent despite no longer being needed in the whaling operation.

Fisherman's Cooperative Societies

The presence of a cooperative society for the fishermen and whalers of Barrouallie has a history not unlike that of the shanties: each experienced a period of utility, a decline, and a final—perhaps symbolic—renaissance. The first iteration of a fisherman's cooperative in Barrouallie began in 1952 as the Barrouallie Fisherman's Cooperative Society Ltd. with the main focus being the support of the pilot whaling operation (Scott 1995). Evidence of this focus continues today, as evidenced by the pilot whale silhouettes used on the society's sign (Figure 5.14).

Figure 5.14: Sign at the Barrouallie Fisheries Cooperative Society. Photograph © Andrew Fielding, used by permission.

The history of this first Cooperative Society is characterized by a period of functionality, utility, and profit from its beginning in 1952 until the early 1970s when its decline began. Between 1972 and 1973 the Society's profits decreased by an order of magnitude (Scott 1995). The timing of this decrease is directly related to the passage of the United States Marine Mammal Protection Act, which forbade the import of whale oil to the U.S., previously an important source of income for the Barrouallie whalers who exported the product, primarily for use in lubrication of small mechanical instruments (Price 1985; Parr 1996; Marine Mammal Commission 2007). In the early 1980s, both the productivity of the whaling operation and the morale at the Cooperative Society were low. Attempting to increase both, the Society began several projects that were intended to stimulate the industry, but that in hindsight, led to the closure of the Cooperative Society itself.

One of the major projects that the Cooperative Society took on was the construction of more modern, more hygienic facilities for the processing and storage of whale meat, blubber, and oil. Unfortunately, this project and subsequent smaller projects were not completed satisfactorily, despite the contractual oversight and funding from international agencies including the United States Agency for International Development (USAID). It is interesting that USAID contributed funds directly toward the development of the whaling operation at Barrouallie in 1984—six years after the establishment of the U.S. Marine Mammal Protection Act. Apparently not all U.S. agencies were against the promotion of whaling in Barrouallie.

A Norwegian consultant oversaw the construction of the processing facility and the U.S.AID funds covered the construction of a whaling boat (Scott 1995). Neither project went smoothly. The facility was built at Wallilabou, the next village north along the leeward coast from Barrouallie and a place without a whaling tradition. Traditionally, Barrouallie has been known as the “blackfish town,” the center of St. Vincent pilot whaling (Anonymous 1999). To construct a whale and dolphin processing center at another village was a poorly planned and culturally uninformed venture. The structure was never used for its intended purpose. Similarly, the whaling boat was built amid controversy as to its cost and seaworthiness. It was launched in 1989, and did well, but only lasted until 1993 when it, along with the Barrouallie Fisherman’s Cooperative Society as a whole, was put out of commission (Scott 1995; see also Jentoft and Sandersen 1996).

The next attempt at a cooperative society in Barrouallie began humbly: according to an archived 2000 memorandum, one of the early meetings of the steering committee was to be held “under the almond tree next to the fishery center.” In 2003 the steering committee registered the Barrouallie Fisheries Development Cooperative (a slight name change from the previous Society) with the national government. However the Cooperative was not officially launched until January 2005. The reliance upon international funding for the whaling operation continues. The building that the Cooperative currently occupies, called the Barrouallie Fisheries Centre, was built with Japanese funds in 1999 (Figure 5.15). Also, until recently, a volunteer from the Japan International Cooperation Agency was stationed in Barrouallie (BFDC 2007).

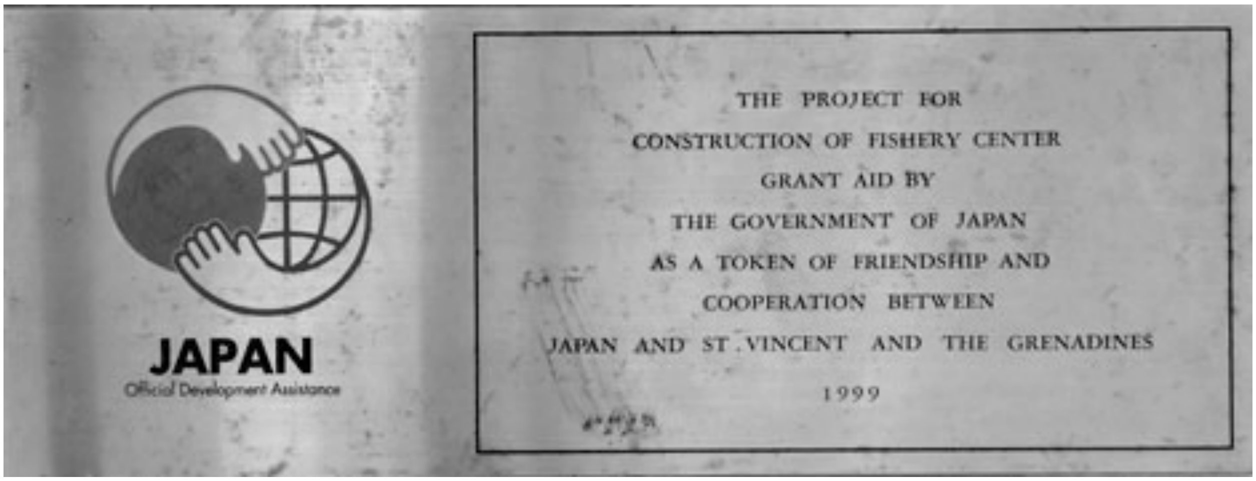


Figure 5.15: Plaque at the Barrouallie Fisheries Centre explaining Japan's role in the construction of the building.

Today's Cooperative is not without controversy. Of the four pilot whaling boat owners in Barrouallie, only one is a member of the Cooperative. While the benefits of membership would seem appealing to local fishermen and whalers—credit for fuel and gear purchases, access to cold storage facilities, and a guaranteed wholesale market—many fishermen and most whalers see the board of directors as not prioritizing their interests.

The current Cooperative has not escaped the financial problems that were characteristic of the previous Society. A 2005 memorandum archived in the Ministry of Social Development, Co-operatives, Gender, Family, and Ecclesiastical Affairs in Kingstown from the ministry to the management team of the Cooperative states that the board of directors has "not been functioning" and that the officers "have failed to perform [their] duties." The memorandum concludes by summoning the board members to a "very important meeting." It can be inferred that the results of this meeting were satisfactory to the Ministry, as the Cooperative continues today, although critics remain. An archived 2007 government evaluation cites several threats to the continuance of the organization, including "negative perception of the public, based on past experiences of [the] other Fisheries Cooperative."

How well the Cooperative is now functioning is a matter of debate. The Cooperative's president, Vibert Pierre, "boast[s] of success" and its members (at least those profiled in the promotional material) agree that its establishment was "a good move" (BFDC 2007). However, Patterson Homer, Chief Inspector at the Cooperative Division of the Ministry of Social Development, Co-operatives, Gender, Family, and Ecclesiastical Affairs in Kingstown is more ambivalent. In a 2009 interview he told me that "there are two functioning co-ops: Kingstown and Calliaqua. There are several that are non-functioning including Chateaubelair and Bequia." When I asked him to evaluate the Cooperative at Barrouallie, which he had strategically not mentioned, he said, "Barrouallie is doing okay. They have a Fish Fest from time to time."

By most accounts, the Hairoun Bagga Fish Fest is the major accomplishment of the Cooperative (*Hairoun* is the name of the local beer, after the Carib name for St. Vincent, and *Bagga* is a nickname for Barrouallie). Since February 2007, the Cooperative has held a festival in the center of Barrouallie on the first Friday of every month. The Fish Fest attracts people from all over the island, who come for the live music, the festivities, and the fish and whale dishes that are sold. The Fish Fest is advertised on St. Vincent radio with the slogan "remember, nobody can cook blackfish like Bagga people!" While the local fish and whale recipes are popular, their popularity has been eclipsed by that of the whale tempura, introduced by a Japanese volunteer in 2007 (anonymous Fish Fest employees, personal communication). The diverse crowd at the two Fish Fests that I attended included active and retired whalers from Barrouallie, urbanites from Kingstown, rural people from the villages, and even a group of Japanese development workers who came specifically for the whale meat.

The primary success of the Cooperative, then, may not be its service to the whalers and fishermen of Barrouallie, but its positive representation of Barrouallie fishing and especially whaling to the Vincentian community at large.

Culture

Whaling Today

Today, whaling in Barrouallie is primarily led by Samuel Hazelwood who operates one whaling boat and one fishing boat and keeps a rotating crew of about twelve working both. During the spring of 2010, Hazelwood was preparing to launch a second whaling boat, bringing St. Vincent's total to four. This will likely increase the size of the whaling operation's workforce by at least six. The tools and methods have remained largely unchanged since the introduction of the outboard motor, as have the networks of processing and distribution of food products and oil.

Tools

There are two types of harpoon in use in the Caribbean pilot whaling operation: hand-harpoons and gun-harpoons. They differ primarily in length and method of use; hand-harpoons are about three meters in total length and are thrown by hand; gun-harpoons are about one meter long and are fired from a modified shotgun mounted at the bow of the whaleboat. There are three main parts to a harpoon of either type: the head (locally called a *gill*), the foreshaft, and the main shaft.

Starting with scraps of steel salvaged from discarded machinery, a blacksmith cuts a rough wedge shape that will become the harpoon's gill (Figure 5.16). He sharpens this wedge to a point and mounts it to the harpoon foreshaft through a central pivot hole with a rivet. This rivet (which is locally called a *toggle*) is made from a stainless steel bolt with the hexagonal head and threading removed and ends pounded flat. Before each harpoon strike, the harpooner ties the gill loosely with a string so it will remain straight until it enters the whale. The purpose of the toggling gill is similar to that of the barb of a fishhook—once the harpoon enters the whale, the gill pivots 90˚ and provides resistance against slipping back out.

The harpoon foreshaft itself is built from scrap steel rods, cut to a length of about one-half meter and pounded flat on one end to fit the channel cut into the gill. The blacksmith drills a hole in the flat end of the foreshaft through which to mount the gill. The other end will connect the foreshaft to the wooden main shaft.

The steel foreshaft joins the wooden main shaft by way of a small metal cup that is built from scrap steel pipe. The blacksmith cuts a section of pipe approximately 10 centimeters in length. He then cuts away triangular sections from one end bends the remaining part of the pipe to form a tapered base. The narrow end of the cup can then be welded onto the foreshaft (Figure 5.17). This is the only process of harpoon construction that whalers regularly outsource—to a local welder who owns an acetylene torch.

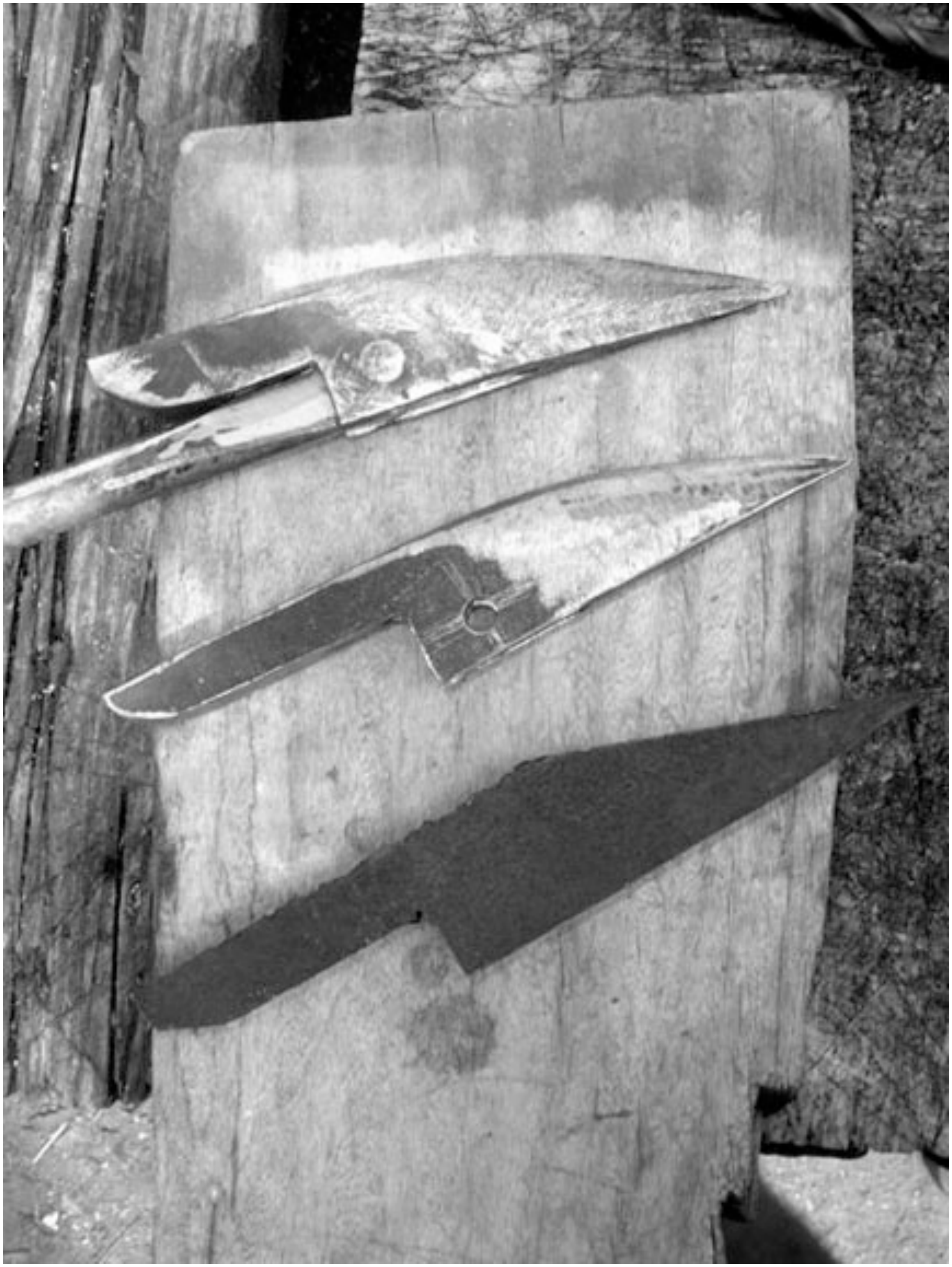


Figure 5.16: The construction stages of a harpoon gill, from bottom to top. First the rough shape is cut from scrap steel, second a hole is drilled for the toggle, a channel is cut for the foreshaft, and the point is sharpened on a grindstone. Finally, the gill is mounted on the foreshaft with a rivet constructed from a stainless steel machine bolt.

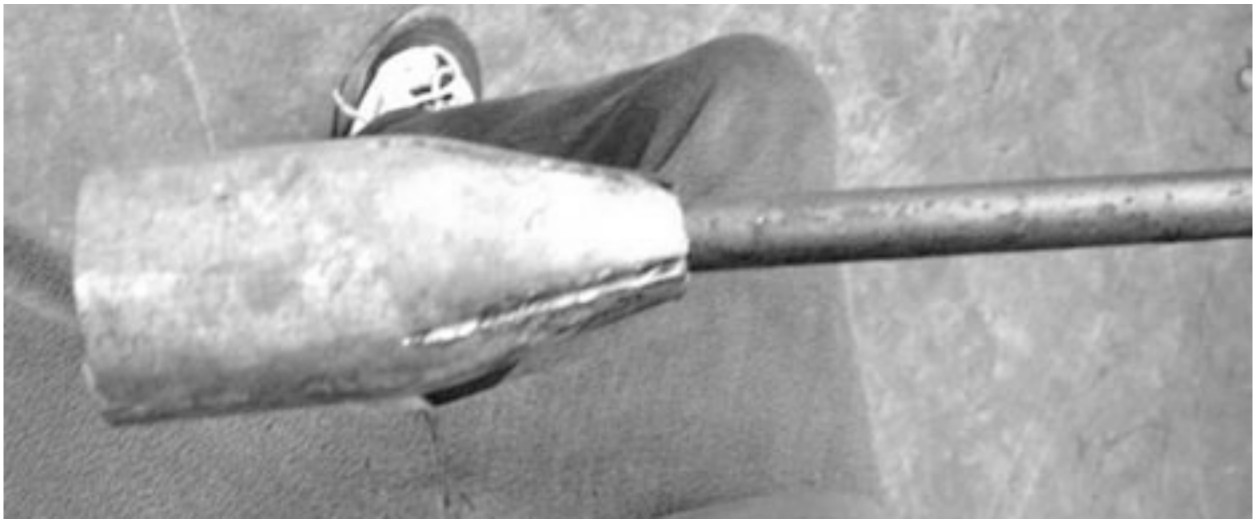


Figure 5.17: A harpoon foreshaft welded to the cup that will attach to the main shaft.

The main shaft of the harpoon is made from purpleheart (*Peltogyne spp.*) or greenheart (*Chlorocardium rodiei*) wood, imported from Central and South America and bought in Kingstown, but was formerly made from the grugru tree (*Acrocomia aculeate*), a locally-occurring species of palm. Shafts are six to seven centimeters in diameter and are cut to either one- or three-meter lengths depending on whether they will be used for gun- or hand-harpoons. The blacksmith pounds the foreshaft cup onto the main shaft. If the harpoon is to be thrown by hand, the only remaining step is to attach a length of nylon rope to the foreshaft so the harpoon can be retrieved after a miss, or so that the whale can be tethered to the boat after a strike. This rope is first tied at the point where the foreshaft is welded to the cup and then at three or four places along the main shaft as backup (Figure 5.18). A gun-harpoon is tied similarly, but with fewer backup knots owing to its shortened length (Figure 5.19).

The final step in building a gun-harpoon is to cut a rubber disk from a discarded tire and to nail it to the base of the main shaft. This acts to dampen the impact of the shotgun's explosive force against the base of the shaft. Before the rubber disk was introduced, harpoon shafts were often splintered when fired. A steel ring is placed around the base of the gun-harpoon's main shaft to further prevent splintering. Despite their meticulous construction and quality materials, harpoons rarely last longer than two years owing to their constant exposure to the elements and heavy usage. A finished harpoon sells for EC$200 (US$75), thus, boat owners can reduce their costs by learning the skills of a blacksmith and making their own harpoons rather than constantly hiring the services of someone else.

The four active whaling boats in Barrouallie all follow the same basic design (Figure 5.20). Samuel Hazelwood's boat is a typical example. The *Sea Hunter* is 21 feet from stem to stern and 6 feet broad at the beam. It was built in Barrouallie in 1993 from cedar, imported from North America, and is powered by a 65-horsepower Yamaha outboard engine. The boat has four rows of seats and there is a deck built over the foremost two meters. Upon a smaller, higher deck in the bow is mounted a five-legged swiveling gun stand (Figure 5.21). The gun stand consists of a vertical post made from a one meter section of 5 centimeter diameter steel tubing, bolted to the bowsprit and stabilized by four sections of rebar, wrapped in gaffer's tape. On top of the post is bolted a circular plate and U-shaped cradle that can turn 315˚. The gun is attached to this cradle by a bolt that allows the gun to pivot vertically 45˚. Adding to the harpoon's range of motion is the coordination between the harpooner and the sternman to point the bow of the boat—and thus, the gun—toward the target.

Many fishing boats that set out from villages in St. Vincent carry hand-harpoons in hopes of taking pilot whales or other small cetaceans opportunistically. Some fishermen in and St. Lucia and Martinique do the same. Dominican fishermen have only recently been forbidden from doing so (Price 1985; Scott 1995; Sanders 2009). A few remaining boats in St. Lucia also feature gun mounts. However, only in the village of Barrouallie, on St. Vincent, are boats specifically built and outfitted for fulltime hunting of small cetaceans.

Figure 5.18: A hand-harpoon.

Figure 5.19: A gun-harpoon.

Figure 5.20: A typical Barrouallie whaling boat and its crew.

Figure 5.21: The *Sea Hunter*'s gun stand.

The gun itself is a modified 12- or 16-gauge shotgun. The barrel has been removed and replaced with a 56 centimeter length of 5 centimeter diameter steel pipe. This pipe is held by steel straps, bolted to a specially designed forestock carved from a two-by-four piece of lumber. It is through this forestock that the bolt passes, linking the gun to the gun mount (Figure 5.22). Once it is mounted, the harpooner loads the gun with a shell from which he has removed the shot and added a half-measure of extra powder. He then loads the harpoon by working its main shaft into the barrel of the gun (Figure 5.23). Mounted on its stand and loaded with a harpoon, with a wide range of radial motion both horizontally and vertically, and with a firing range of up to 100 meters, the harpoon gun is the whaler's most technologically advanced tool.

Figure 5.22: Shotgun modified for firing harpoons, mounted on the bow of the *Sea Hunter*.

Figure 5.23: The harpooner loads the gun.

A Caribbean whaling boat carries three people: the harpooner, the sternman, and the centerman. The harpooner's role is that of captain. He stands at the gun stand, watches for whales and dolphins, and directs the sternman where to steer. An intimate and mysterious conversation occurs between the harpooner and the sternman using only hand gestures and boat movements (Table 5.1). The harpooner calls for the centerman to pass harpoons to him, loads and fires the gun, and throws the hand-harpoons. The sternman steers the boat according to the harpooner's directions. The centerman assists by passing gear between the sternman and harpooner, straightening bent harpoons, hauling aboard—and cutting harpoons from—captured whales and dolphins, and assisting however possible. On the whaling voyages in which I participated, I was the centerman. All three watch for whales or dolphins breaking the surface to breathe but it is usually the harpooner who sights them owing to his trained eye and elevated position on the raised deck.

Table 5.1: Hand signals from harpooner to sternman, and their interpretations, as observed during fieldwork.

Hand Signal	Interpretation
Hand up, palm forward, fingers up	Keep current speed, current course.
Point right or left	Turn sharply right or left.
Point right or left, behind body	Veer right or left, keep forward course.
Hand down by waist, palm back	Slow down.
Hand down by waist, palm back, hand pumping forward and backward	Stop.
Hand held down, palm back, swinging forward and back by waist	Increase speed.
Point up with index finger	Bring boat to full speed on current course.
Hand up, swung once toward shore	Return to port.
Hand open, held to side, palm up	Boat, gun, and whales or dolphins not lining up properly; frustration with sternman, seas, and/or whales or dolphins.
Hand making "dorsal fin" motion, fingers up	Whales or dolphins sighted (target species).
Fist opening and closing	Sperm whale, or other large whale, sighted (non-target species).

Below the gun stand, the harpooner keeps a ball of nylon rope. After loading a harpoon he ties the end of the harpoon's line to one end of this rope and passes the other end to the sternman who, when a whale is struck, turns the line once around the loggerhead—a carved block of wood that passes through the bench in front of the sternman and is bolted to the floor of the boat (Figure 5.24). The loggerhead's purpose is to provide friction to the line and slow the whale's progress as it attempts to dive or flee after having been struck with the harpoon.

Figure 5.24: The loggerhead in use after a whale has been struck.

Caribbean whaling boats are full of other items that may or may not become necessary during the day's activities. Following is a full inventory of everything that is brought along on a typical whaling voyage:

- 4 18-gallon fuel tanks
- 3 1-gallon water jugs
- 3 watertight personal buckets (containing lunches, mobile telephones, GPS, etc.)
- 2 cutlasses (as machetes are called in the Caribbean)
- 1 siphon hose
- 2 knives
- 1 flathead screwdriver
- many handlines for fishing
- 2 raincoats
- 1 box of shotgun shells
- 1 modified shotgun
- 7 hand-harpoons
- 12 gun-harpoons
- 1 gaff hook
- 2 lances (essentially hand-harpoons with the gills sheared off and the foreshafts sharpened)
- 2 bailing buckets

- 4 bamboo poles
- 1 hammer
- 12 floating buoys
- many 45-meter lengths of nylon rope
- 1-meter steel rod for clearing the gun barrel
- wooden club for stunning fish
- 2 flashlights

The gear is not arranged methodically; it is placed rather haphazardly in the boat and must be quickly rearranged when catches are brought onboard. Often, when a whale or dolphin is harpooned it swims quickly away from the boat, causing the line attached to the harpoon to zip out. Anything tangled in the line is pulled overboard and crewmembers must often hop about the boat quickly to avoid getting tangled themselves. It is interesting to note certain items that are *not* included on the list: life preservers, first aid supplies, marine radios, extensive toolkits, extra engine or engine parts, and oars.

Process

A pilot whaler's day starts early, but not as early as an ordinary fisherman's day. Pilot whalers need sunlight to be able to see the whales and they need a clear view, without fog, to see the sprays from their blowholes and the dorsal fins breaking the surface of the water. Thus, the boat sets out between 7:00 and 8:00 in the morning, a full 1-2 hours past sunrise. If the crew did not fill the tanks the night before, they must wait until the fisheries cooperative opens at 8:00am to buy fuel. During my participatory fieldwork, the earliest time of departure was 7:09am and the latest was 8:18am. The average time of departure was 7:41am.

Because of their religious convictions, some whalers generally do not work on Sundays, though some Barrouallie fishermen do and they will alert the whaling captains of any whales sighted. Through the 156 weeks of data (January 2007 – December 2009), one boat, the *Sea*

Hunter, sailed on only twenty Sundays. This boat's hunting effort during the period for which I have records is shown by month in Figure 5.25.

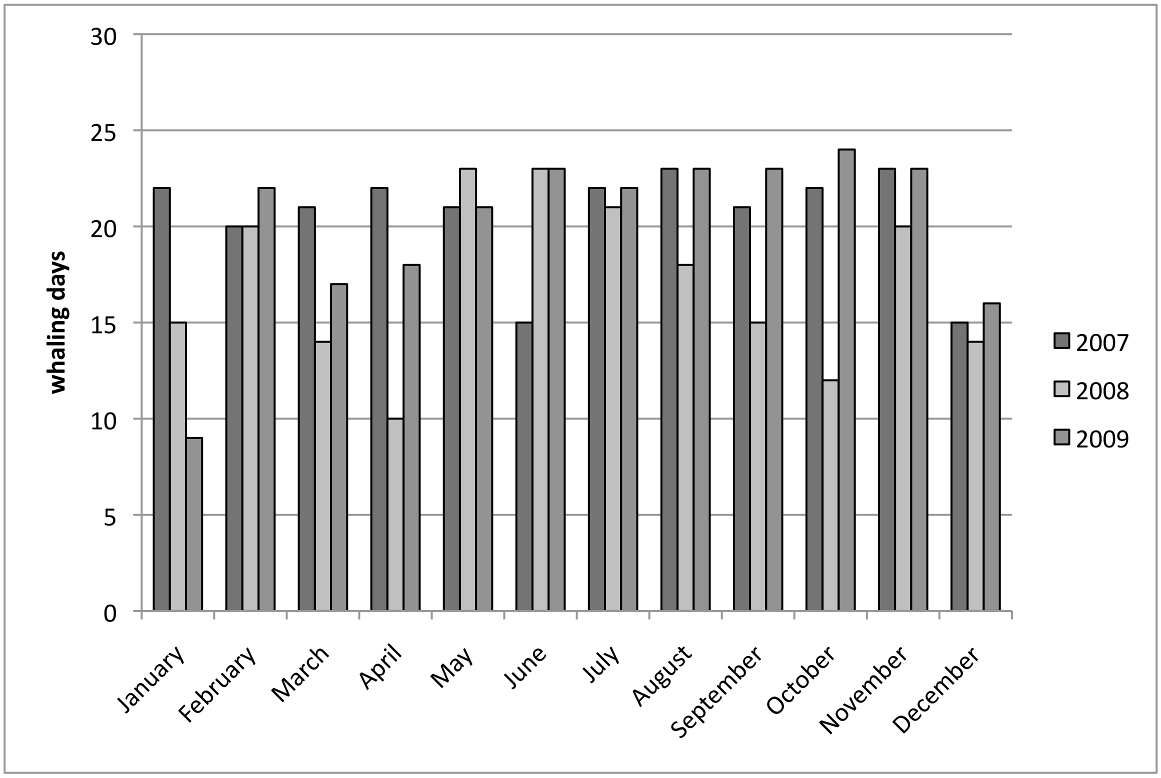


Figure 5.25: Number of whaling days per month by one Barrouallie whaling boat, 2007-2009. Source: Financial Records of Samuel Hazelwood.

Once underway, the harpooner signals the sternman regarding the direction the boat should initially take. All eyes on board begin scanning the surface of the sea for signs of whales or dolphins. Often the harpooner also watches for flocks of seabirds diving—an indicator of a school of fish, which in turn may indicate pilot whales or other cetaceans feeding on the fish. The harpooner usually throws a line with a hook and lure overboard to troll behind the boat for albacore tuna (*Thunnus alalunga*) during the day, however during my fieldwork I never observed anything caught on this line.

If Fraser's dolphins (*Lagenodelphis hosei*) are sighted early in the day they will often not be hunted but will rather be pursued at a distance with the hopes that they will lead the boat to a pod of pilot whales or orcas. Later in the day, these inshore dolphins are often hunted as a last resort. During the day, the harpooner and sternman will occasionally cast a handline to fish for skipjack tuna (*Katsuwonus pelamis*) or dorado (*Coryphaena hippurus*) (Figure 5.26). These handlines are quickly wound in if whales or dolphins are sighted.

Figure 5.26: The harpooner handlines for skipjack or dorado.

After two or three hours of searching, if no whales or dolphins are sighted, the harpooner usually signals the sternman to cut the engine and the entire crew rests for one or two hours. During this time they eat lunch, nap, chat, and watch for flocks of diving seabirds.

After lunch, the hunt resumes and lasts until a large catch is made, until sunset, or until the harpooner decides to return to port. If more than one boat is hunting, a harpooner may communicate by mobile telephone with his colleagues in the other boats to ask whether they have sighted anything. Harpooners, until recently, directed one another to pods of whales or dolphins but rarely hunted cooperatively in any active way (Figure 5.27). Today, because of certain ill feelings among the Barrouallie harpooners, most whaling boats hunt alone.

Figure 5.27: The hunt is neither cooperative nor competitive but two or more boats are often in the vicinity of the same pod of whales or dolphins

When whales or dolphins are sighted the harpooner directs the sternman to his preferred position for harpooning. Pilot whales and dolphins can be either “wild” or “tame” depending upon their behavior. The local usage of these terms is slightly different from their standard definitions and bears some explanation. Tame whales and dolphins are ones from pods that have not been hunted before and do not yet avoid boats and humans. They will often approach the boats quite closely and can sometimes be seen swimming in the bow wake. These are the easiest targets. They can often be struck with the hand-harpoon. Wild whales and dolphins have been hunted before, avoid humans, and flee boats. They are difficult to hunt and must usually be struck with the gun-harpoon. When whalers are recounting the day’s events to friends on shore in the evening and they mention sighting a pod of whales or dolphins, the first question asked is often, “were they wild or tame?” The answer to this question often foretells the rest of the story.

After the decision has been made whether to use the hand- or gun-harpoon, the harpooner readies the chosen implement (Figure 5.28), waits until the target animal rises to breathe, and fires or throws the harpoon (Figure 5.29 and Figure 5.30). Accuracies vary among harpooners. If it is a miss, the harpooner quickly reels in the line and readies the harpoon for another try, keeping an eye on the whales or dolphins all the while. This “resetting” process is much quicker if a hand-harpoon is being used. To reload the gun harpoon, the harpooner must dislodge the spent shell with a one-meter steel rod, reload a new shell, and reload the harpoon into the gun.

Figure 5.28: A Risso's dolphin sighted, the harpooner takes aim with the harpoon gun.

Figure 5.29: The harpoon is fired; the result, a hit.

Figure 5.30: Alternatively, the harpooner may choose to throw a hand-harpoon. Photograph © Andrew Fielding, used by permission.

If it is a hit, there are three options depending upon the animal's size and level of activity. If a small dolphin has been harpooned and it does not react violently to the strike, the harpooner, centerman, and/or the sternman often simply hold the harpoon line and haul the animal closer to the boat as it tires. If the animal is large, but manageable, the harpooner will pass the harpoon line to the sternman who turns it once around the boat's loggerhead and slowly draws the animal in. If the animal is extremely large, like an orca or a large pilot whale, the harpooner will tie one or more of the large plastic buoys to the line and let it go overboard, no longer attached to the boat. He will then direct the sternman to approach the animal when it has tired, and will then begin to tow it to shore. Buoys are also used if a large pod of dolphins is found and the harpooner feels likely to take more than one. Rather than haul each struck dolphin onboard before preparing to harpoon the next, he will harpoon several in quick succession, letting each go with a buoy, and will then collect the catches after they have all tired.

Sometimes, but not often, the first harpoon strike is accurate enough to kill the animal. During my fieldwork, I noted the location of all harpoon strikes. Very few fell outside of a particular vital area: between the front of the pectoral fins and the back of the dorsal fin, and above the abdomen. Often a second harpoon will be thrown to further secure the animal to the boat (Figure 5.31). The animal is either injured or dead when it is drawn alongside the boat (Figure 5.32). If alive, the decision to kill the whale or dolphin with a lance or a knife is based solely upon the question of manageability. If the dolphin is hauled onboard the boat alive will it thrash around violently—possibly damaging the boat or flipping itself out into the water—or will it lie still? Calm animals, or those that are more seriously injured by the harpoon, are often subjected to longer times-to-death from their first harpoon strike than ones that are harder to manage when brought on board. Unmanageable animals are usually killed with a lance to the heart or lungs, or a knife to the vessels that are the brain's major blood supply—about a handbreadth behind the blowhole. The harpooner, sternman, and centerman haul the animal on board, dead or alive, and place it on the floor of the boat (Figure 5.33).

If the animal is large, like a pilot whale, it will be tied to the gunwales of the boat instead of hauled onboard. In either case, the catch is secured and the hunt then resumes. Whalers with whom I spoke in Barrouallie each remember their own personal "best day" and the record catch I heard of for dolphins was twenty-eight. For pilot whales the record was ten. The largest daily catches during the period for which I have Samuel Hazelwood's records (January 2007-June 2009) are shown in Table 5.2.

Figure 5.31: Risso's dolphin with harpoons embedded. A hand-harpoon has been thrown after the gun-harpoon to ensure the dolphin was securely fastened to the boat. Note the presence of a second dolphin in the top left corner. *Grampus griseus* is a gregarious species.

Figure 5.32: The Risso's dolphin, dead and drawn alongside the boat.

Figure 5.33: Hauling the Risso's dolphin onboard.

Table 5.2: Record daily catch, according to the records of Samuel Hazelwood 2007-2009.

Type	Maximum Daily Catch
Dolphin	23
Pilot Whale	10
Orca	3

When the harpooner feels that the hunt is complete, he signals the sternman to return to port. The harpooner usually remains at his post—standing upright in the bow of the boat, a harpoon loaded in the gun—until the boat is very near the dock. The purpose of this continued vigilance—noted by Melville—is to be ready if any whales or dolphins are sighted on the journey home. The lookout positions on the *Pequod* were said to be "manned almost simultaneously with the vessel's leaving her port… and kept manned to the last… [in] the hope of capturing one whale more" (Melville 1851, 147). As the boat approaches the shore, the sternman cuts the engine, the harpooner unloads the gun, and the crowd gathered on the dock peers anxiously to see what was caught. The boat owner, if not onboard during the hunt, has usually been alerted by mobile telephone as to what the day's catch has been. He, in turn, has usually already made arrangements with one or more of Barrouallie's local vendors for the wholesale of the catch. Often, prices are agreed upon before the whaleboat has even been tied at the dock and vendors are sharpening their knives on the dock's concrete pilings as the sternman ties the boat.

It has usually been a long day and the whalers are tired. During my participatory fieldwork, the earliest time that the whalers returned to port was 1:11pm, the latest was 6:20pm, and the average was 5:08pm. The shortest duration of a whale hunt that I experienced was 5 hours, 28 minutes. The longest was 10 hours, 38 minutes; the average was 8 hours 26 minutes.

With the return of the day's catch, a transfer of control occurs from the harpooner to the vendor. This transfer involves a change from sea to land, from male to female, from living animal to food product, and, occasionally, from life to death. The dock and the swash zone of the beach—both being physically between sea and land—serve as the location of this transfer. In this, they become *liminal spaces*—a concept that entered geography through the ethnography of Arnold van Gennep (1909) and the anthropology of Victor Turner (1967; 1969). Liminality is the state of transition through which one passes during a change from one phase of life or experience to another. Within geographical thought, a liminal space is a location in which the temporary inhabitants are between forms.

At sea, over water, the harpooner is in control. His is the role of captain of the ship and the sternman and centerman must obey his directions. On shore, on land, the vendor is in control. She gives orders to her helpers and decides what will become of the meat she processes. Indeed, she owns the catch having purchased it whole from the harpooner. Harpooners are always men; vendors are almost always women. At the time of my fieldwork there were ten vendors in Barrouallie; nine were women. According to older informants and historical texts, the gendering of these roles has always been rigidly divided (Adams 1973; Scott 1995). In fact, today's sole male vendor did not set out to become a vendor but had taken over his mother's business when she died.

Distribution

After the hunt, the harpooner delivers the catch to the dock or to the beach. The difference is only one of convention: some vendors prefer one location to another to receive their carcasses. Sometimes at this point the animal is still alive, and whether alive or dead, it is whole, that is, its body cavity has not been opened to remove the internal organs. It resembles an animal more than a commodity. Within the liminal space there are helpers—men and boys present on the dock or beach, who lend a hand in hopes of reciprocal rewards, not always paid out immediately, though the harpooner and vendor remember their assistance. These helpers conduct the business of killing the animal if it has arrived alive, preparing the carcass to be processed, discarding unusable parts, and delivering useful pieces of a manageable size to the vendor who has set up a workstation on shore. That the work of the helpers occurs on the dock—on a solid surface but over water, or within the swash zone—alternating between land and water with each wave, represents something about their role as go-betweens.

Theirs are the hands by which an animal becomes a generic commodity, not yet fully processed as food, but no longer identified as a distinct species. At sea there are myriad local names for the various cetacean species that whaleboat crews may encounter (Table 5.3). These names are descriptors of living animals and of whole carcasses. For example, a Risso's dolphin is known locally as an *Americano* while it is alive and retains this distinction when its carcass is delivered to the shore. However, after processing, the meat is known in Creole simply as *papas* (porpoise), the same name given to meat from a number of small cetacean species. Likewise, pilot whales, orcas, and melon-headed whales are distinguished from one another while at sea—called *blackfish*, *whitefish*, and *black hard-knocks* respectively—but the processed meat of all three is sold as *blackfish*.

The liminal space of the dock or the swash zone then becomes the place where animals lose their species identity, where they become commodities, and where the control over their fate changes hands from male to female, from sea to land, and from hunter to provider. If they have had the misfortune to survive the harpooning and the transportation by boat to shore, the liminal space is also where the whales are transported from life to death.

When the boat owner and vendor have agreed upon a wholesale price for the catch, the vendor pays the owner in cash on the spot and assumes ownership and control of the whale or dolphin. Prices vary widely depending partially upon ordinary market factors: amount of meat in storage, times of increased demand, and also upon social factors: some harpooners and vendors are related by kinship or marriage and give each other special deals. The average price that I observed was EC$176.11 (US$65.59). According to Samuel Hazelwood's financial records, the average price per cetacean from 2007 through 2009 was EC$278.66 (US$103.78).

In addition to the helpers present at the dock or beach, each vendor employs up to ten individuals who help with the processing, distribution, and sales of the product. One boat owner explained during an interview that he employs twelve crewmembers on a rotational basis, working on both his fishing and whaling boats. Other boat owners also rotate their similarly sized crews. Thus, the four whaling boats and ten vendors currently active in

Barrouallie employ a workforce of about 124 on a part-time basis. Culturally, this system works well, as Young (1993) describes the norm of multiple part time jobs within Vincentian society.

Table 5.3: Common and scientific names of thirteen commonly observed cetacean species off St. Vincent. The two right columns show the local names given to the living animals and food products obtained from those species. Notes: St. Vincent whalers do not hunt the sperm whale and humpback. At Fish Fest, all marine mammal meat is sold as "blackfish."

<table>
<tr><th>Common Name
(Standard English)</th><th>Scientific Name</th><th>St. Vincent Creole
(living animal)</th><th>St. Vincent Creole
(food products)</th></tr>
<tr><td>short-finned pilot whale</td><td>Globicephala macrorhynchus</td><td>blackfish</td><td rowspan="3">blackfish</td></tr>
<tr><td>killer whale</td><td>Orcinus orca</td><td>whitefish</td></tr>
<tr><td>melon-headed whale</td><td>Peponocephala electra</td><td>black hard-knocks</td></tr>
<tr><td>Risso's dolphin</td><td>Grampus griseus</td><td>Americano</td><td rowspan="8">papas</td></tr>
<tr><td>dwarf sperm whale</td><td>Kogia sima</td><td>rat papas</td></tr>
<tr><td>Atlantic spotted dolphin</td><td>Stenella frontalis</td><td>gamin fish</td></tr>
<tr><td>spinner dolphin</td><td>Stenella longirostris</td><td>rollover papas</td></tr>
<tr><td>false killer whale</td><td>Pseudorca crassidens</td><td>mongoose</td></tr>
<tr><td>Fraser's dolphin</td><td>Lagenodelphis hosei</td><td>skipjack papas</td></tr>
<tr><td>rough-toothed dolphin</td><td>Steno bredanensis</td><td>petty det</td></tr>
<tr><td>various beaked whales</td><td>Mesoplodon spp.</td><td>grampus</td></tr>
<tr><td>sperm whale</td><td>Physeter macrocephalus</td><td>sea guap</td><td rowspan="2">whale</td></tr>
<tr><td>humpback whale</td><td>Megaptera novaeangliae</td><td>hunchback</td></tr>
</table>

The boat owner must pay expenses and divide the income among the crew (Figure 5.34). First the cost of fuel is taken from the total. If the fuel cost is more than the total value of the catch, the boat owner absorbs the difference; a crewmember will not lose money on a day of whaling. If there is a positive remainder, as there usually is, it is then divided in two—half going to the "boat" and half to the crew. The "boat" means the physical equipment and supplies for whaling. This portion of the money funds replacement harpoons and lines and repairs to the boat, engine, and gear. The other half is divided among *four* crewmembers—the harpooner, the sternman, the centerman, and the engine. "The engine is the fourth man," one boat owner told me after paying out the proceeds from a particularly good catch.

It may be the case that the practice of counting the engine as a crewmember traces its origin to the time before engines were used. A 1968 photograph of a "blackfish boat under sail" with no engine present shows five crewmembers—presumably one harpooner, one at the tiller, and three rowers. The authors of the paper in which the photograph appears mention that, while the sailing boats are described as carrying a "crew of six," one boat was normally observed with a crew of five (Caldwell and Caldwell 1971, 197). Likewise, in my 2008 interview with George "Tall Twelve" Frederick, a Barrouallie whaler during the pre-engine era, it was explained that the distribution of payment was split among a "crew of six." Perhaps the sixth man during the age of sail was the sail itself, just as the fourth man today is the outboard engine.

After the crewmember payments, as a gesture of good favor, the boat owner usually divides ten percent from the portion of the profits belonging to the boat between the harpooner and the sternman. This extra payment—simply called "the percentage"—is given as a sign of appreciation for their skilled roles in the whaling activities.

Once the vendor has paid for the catch and assumed control, her first task is to cut the pieces delivered to her by the helpers to marketable sizes. Depending upon the time of delivery, these activities may occur the same day as the animal was caught or the next day. If the butchering is to occur the next day, the whales or dolphins will be stored (whole or bisected widthwise) in a seaside shed accessible to the vendor.

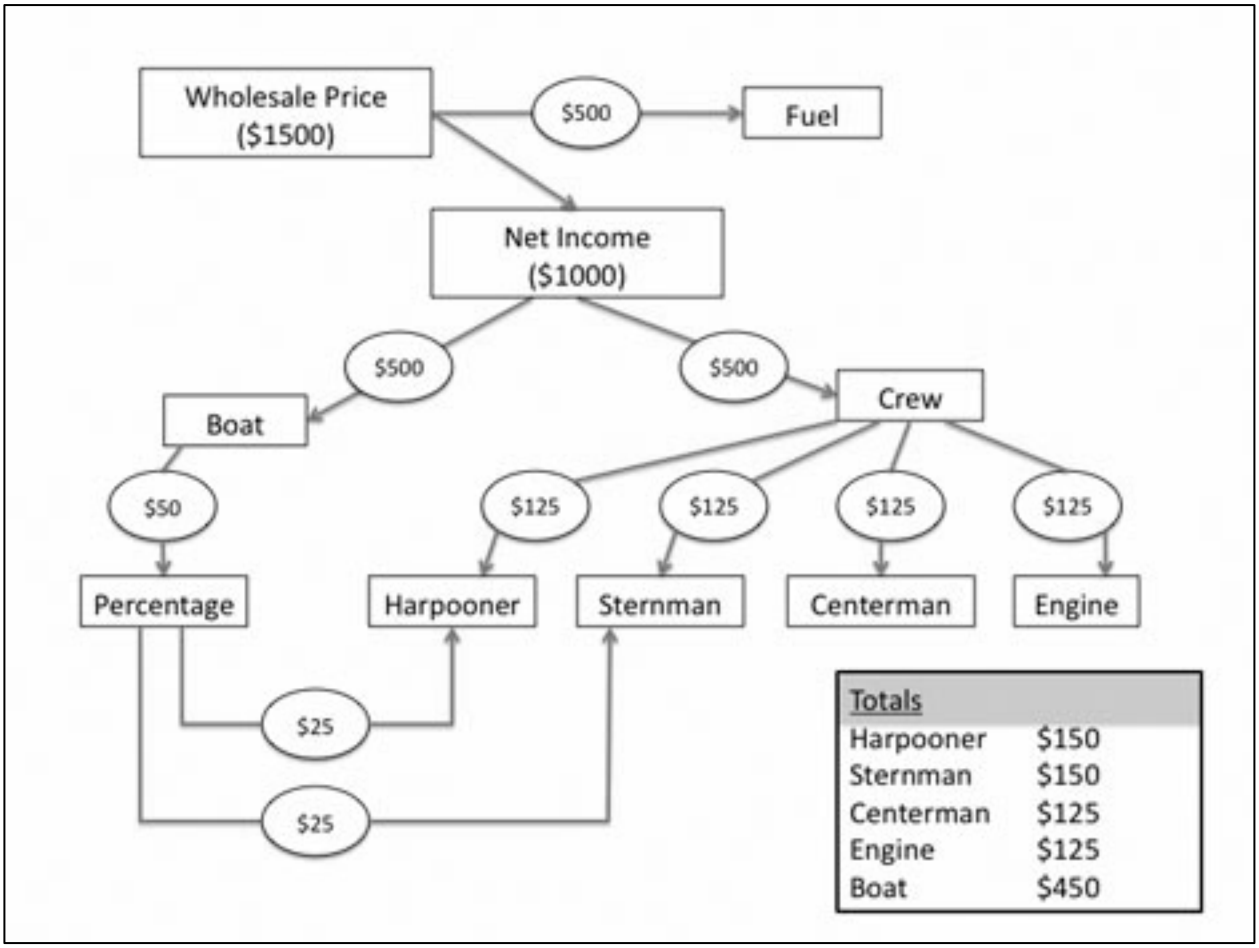


Figure 5.34: Payments resulting from a hypothetical whaling voyage in St. Vincent. Note: EC$1500 is not an uncommon amount for a day's whaling.

When the time to butcher the animals has arrived the vendor sets up a temporary processing facility on the beach (Figure 5.35). This facility consists of three stations: the dividing station where large pieces of meat and blubber are cut from the carcasses (Figure 5.36), the meat station where large pieces of meat are cut into thin sheets for drying (Figure 5.37), and the blubber station where sheets of blubber and skin are cut into small cubes for frying (Figure 5.38). All of the work is done with machetes (locally called *cutlasses*) and smaller, handheld knives.

Figure 5.35: An ad hoc processing facility set up on the beach at Barrouallie.

Figure 5.36: First station—separating large pieces of meat and blubber from the carcasses.

Figure 5.37: Second station—trimming large pieces of meat and slicing thin sheets for drying.

Figure 5.38: Third station—cutting sheets of blubber and skin into small cubes for cooking.

These stations are normally gendered spaces with men operating the first and third stations and women operating the second. The vendor, almost always a woman, is in charge of the entire operation. When questioned about this gender-separation, vendors and their workers simply explained that the roles were "traditional."

After the workers have cut the meat and blubber down to manageable sizes, they process these materials for sale and consumption. The meat is sometimes sold *fresh*, or raw, for cooking but the more common method of preparation is drying. The blubber is nearly always cooked in its own oil and lightly salted.

Meat preparation takes place on racks made of bamboo and wood that are set up near the beach. In Barrouallie there are five such racks set up permanently and one that can be taken down when it is not in use. The vendor and her employees hang the meat directly on the horizontal bamboo poles, above the reach of Barrouallie's many stray dogs at a height of about 1.5 meters (5 feet) above the ground (Figure 5.39). After drying for several days, during which the meat is turned at least once each day (Figure 5.40), the meat is ready to be processed and packaged for sale. At this point the texture is like that of American beef jerky.

The vendor cuts the large sheets of dried meat into small strips and bundles these strips together, tying the bundles with strings made from banana leaf fiber (Figure 5.41). I examined several of these bundles and found that their weight varied significantly. Although the weights ranged from 0.25 to 0.5lb (113-227g), in the Kingstown market the bundles cost the same amount—EC$2.50 (US$0.93) each—regardless of weight, though prices varied in the villages (Figure 5.42). The taste of whale meat is similar to that of lean beef with strong fish influences.

Figure 5.39: A vendor hangs pilot whale meat to dry in Barrouallie.

Figure 5.40: A vendor's assistant turns meat that has been hung on drying racks.

Figure 5.41: A woman binds bundles of dried whale meat with banana leaf fibers at the Barrouallie Fisheries Cooperative.

Figure 5.42: One whale meat bundle, value: EC$2.50

While the meat is being dried, the vendor and her assistants will usually prepare the blubber for sale and consumption. During the processing stage, the blubber was cut to small cubes (1-2 cm^3) with the skin left on. These cubes of blubber are placed into a metal pot or an old oil drum, and heated over a fire. Only a small amount of salt is added to the pot. As the blubber heats, it releases oil, which boils. The blubber is fried in its own oil (Figure 5.43). Sometimes the cook will scoop bowlfuls of the oil out of the pot, with which to stoke the fire. After several minutes the blubber cubes take on a brown color and begin to float in the oil. This indicates that they are done. The finished product is called *crisps* (pronounced without the first 's'—as *crips*) and is a popular snack amongst Vincentians. Consumers buy crisps in plastic bags, sometimes soaked in oil (Figure 5.44). The taste and texture are somewhat like thick pork bacon, but with the flavor of fish. Pilot whale and dolphin crisps are comparable in taste.

Figure 5.43: A man stirs a pot in which blubber is being cooked to produce oil and crisps.

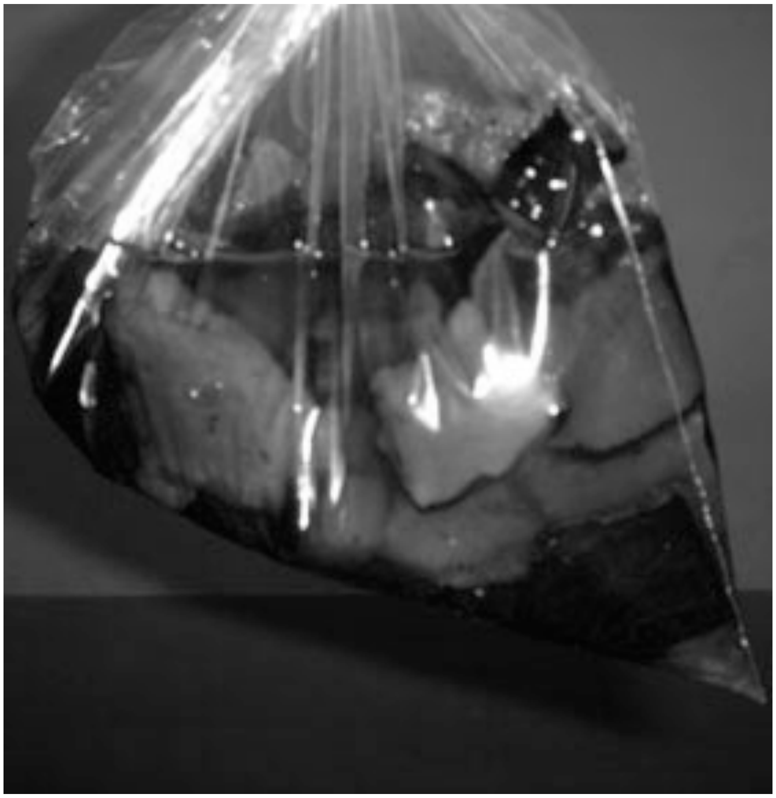


Figure 5.44: One portion of crisps, in oil, for sale in the Kingstown Fish Market, value EC$2.00-5.00.

Previous scholarship has disagreed on the seasonality of pilot whaling in St. Vincent (see Scott 1995). However, recent data covering the years 2007-2009 indicate no true annual pattern to the catch when adjusted for effort—the whalers take a holiday in late December and early January to celebrate Christmas and the New Year and the boat owners often use this time to upgrade and repair the equipment and the vessel. In an interview with a local St. Vincent affiliate of NBC radio, Samuel Hazelwood stated that the season runs “from January to December” (NBC 2009), echoing the words of a local calypsonian called Becket, who sang not only of his love for—and cultural identification with—traditional Vincentian foods including “blackfish crisps” but also that, “whaling time is anytime and anytime is whaling time.”

When analyzed by month (Figure 5.45), a trend toward a slight increase in overall catch is evident during the summer months. Dolphin catches increase significantly from May to

November. Pilot whale catches decline sharply in June but remain relatively stable during the rest of the year. However, no month shows a marked decrease in total catch, supporting the view that whaling in St. Vincent is non-seasonal and whaling time truly is anytime.

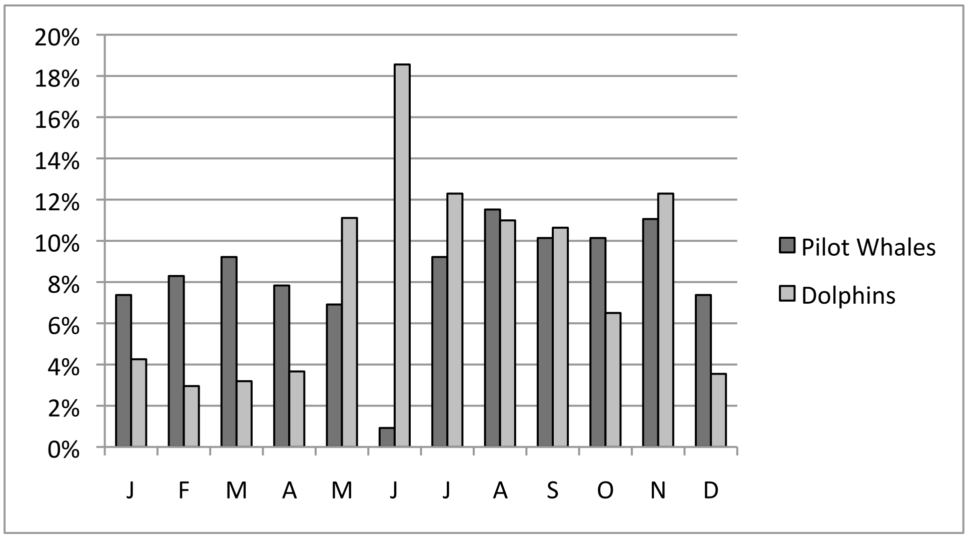


Figure 5.45: Monthly catches of pilot whales and dolphins as a percentage of the annual total (2007-2009).

Consumption

According to three surveys published during the last 30 years, meat and blubber from pilot whales and dolphins are more popular in Barrouallie than throughout the rest of St. Vincent (Adams 1980; Scott 1995; Straker et al. 2000). Each survey used its own methodology, making direct comparisons problematic. However, looking at the results of the surveys independently sheds light on the public perception of pilot whale and dolphin products. Each survey presented its results geographically to some degree, dividing the respondents either by town or region. It is possible that geographical inequalities in whale and dolphin consumption are due to varying degrees in availability, as presently pilot whale products may only be found regularly in Barrouallie and Kingstown (Figure 5.46 and Figure 5.47). Elsewhere, one must await the arrival of a mobile vendor.

Figure 5.46: Sign advertising pilot whale meat for sale in Barrouallie.

Figure 5.47: A vendor sells her products--pilot whale meat (right) and blubber (left)--at the Kingstown Fish Market.

Adams divided his study area into the following five regions: Kingstown, Leeward Coast (which includes Barrouallie), South Coast, Interior and Windward Coast, and the Grenadines (Figure 5.48). He further divided Kingstown into populations of high and low income. For each region, Adams (1980, 20) listed "major fish consumed" and "other fish consumed." The only region for which pilot whale was listed in the former category was the Leeward Coast. It was listed in the latter category only for the low-income parts of Kingstown. Additionally, the meat of the humpback whale was listed in the latter category for the high-income parts of Kingstown, the South Coast, and the Grenadines.

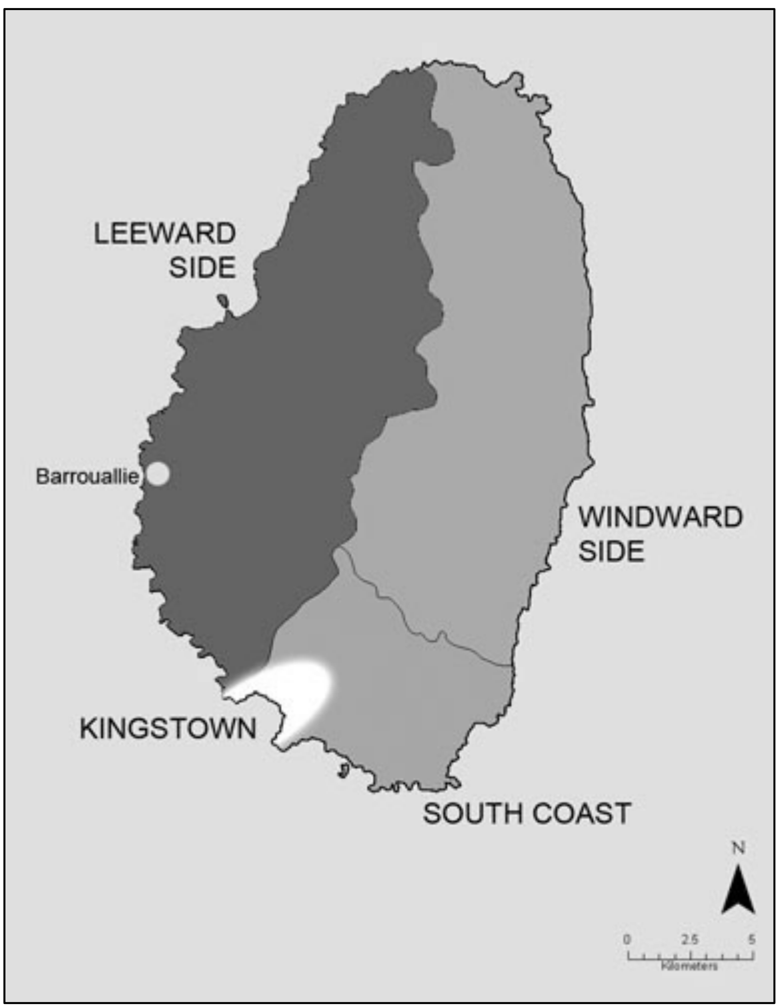


Figure 5.48: Adams' (1980) geographical divisions of St. Vincent for his fish preferences survey. Note: Grenadines not shown.

Scott divided his respondents into only two geographical areas: Barrouallie and outside of Barrouallie. He asked whether marine mammal meat is an important part of the respondent's diet and whether he or she looked forward to the availability of certain marine mammal products (Scott 1995, 73-74). His results are summarized in Table 5.4.

Table 5.4: Summarized results of 1995 survey on consumption of marine mammal based food products. Values represent percentage of respondents giving affirmative answers. Source: Scott 1995.

	Barrouallie	Outside Barrouallie
Is marine mammal meat an important part of your diet?	50	25
Do you look forward to…		
…meat?	69	27
…crisps?	69	32
…oil?	50	8

Finally, Straker and his colleagues divided their respondents into Leeward side, Windward side, and Bequia and simply asked, "Do you eat marine mammals?" Their results show that 68.6 percent of Leeward respondents answered in the affirmative, versus 52.8 percent of Windward respondents and 67.4 percent on Bequia (Straker et al. 2000, 18-19). However the wording of Scott's and Straker's questions assumes the understanding that whales and dolphins are in fact mammals. It has been my experience that this fact is far from widely accepted among Vincentians. The local name, *blackfish*, serves to reinforce misunderstanding of the relevant taxonomy.

Of the three surveys cited, only Adams gathered qualitative data (perhaps not surprising owing to his status as the only geographer among the three investigators). Participants in Adams' survey who responded negatively to questions about their preference for meat and blubber from marine mammals expressed dissatisfaction with the unsanitary method by which the meat was preserved, packaged, and displayed for sale. These participants also commented that the meat was “bloody,” had a “peculiar smell,” and was “not like other fish” (Adams 1980, 25). Adams interprets the latter comment, that the meat of dolphins and whales is “not like other fish” simply by stating that “most Vincentians thought of porpoise [sic] as a kind of fish” but from my own interviews with the Vincentian public, I have come to a different conclusion.

Of the forty-one respondents in my public survey, four (9.8 percent) mentioned being hesitant to eat meat from pilot whales or dolphins because of the animals’ human-like qualities. When questioned further, these four respondents—independently—brought to my attention a sort of cultural taboo based upon the misinformation that the genitalia of female dolphins and pilot whales resembles that of the human female and that the cetaceans menstruate like human females do.

I asked Samuel Hazelwood about this taboo and he indicated that he was familiar with it but that it was based not on fact but superstition. It is interesting to note that the four respondents who mentioned this taboo were all from the Windward side of St. Vincent and that none had seen a whole pilot whale or dolphin—living or dead.

Anthropologists have long studied food taboos (Douglas 1966; Simoons 1994). The belief in some kind of physical or spiritual kinship between humans and cetaceans has been identified as a mark of the modern anti-whaling movement (Kalland 1993a; Kalland 1994a; Lien 2004). Additionally, there does exist a taboo against hunting whales of certain totemic species amongst Indonesian aboriginal whaling communities (Alvard 2003). However these taboos are probably not analogous to the stigma against consuming marine mammals among some Vincentians, owing to the variety of species hunted and the general lack of concern for the welfare of the animal in other regards.

The taboo noted among a minority of Vincentian respondents echoes more general menstrual taboos long described by anthropologists (Kamsler 1938; Stephens 1961; Young and Bacdayan 1965; Montgomery 1974) and in particular, the interactions between the menstrual taboo and hunting as described by Kitahara (1982). The important difference in the cases analyzed by Kitahara and the Vincentian case is that the former considers only human menstruation, while the latter anthropomorphizes this characteristic upon the animal.

With the exception of this menstruation taboo, the primary reasons given for not consuming whale or dolphin products were the hygiene issue noted by Adams and the issue of religion. The Fisheries Division of the Ministry of Agriculture, Lands, and Fisheries, has tried on several occasions to install sanitary facilities for the storage and processing of whales and dolphins in and around Barrouallie (Scott 1995). According to Jennifer Cruickshank-Howard, of the Fisheries Division, the government continues to encourage vendors in Barrouallie to use more sanitary facilities and will sponsor the construction of more facilities in the future. Currently the vendors have only two choices for storing and processing whales and dolphins: the Cooperative Society or their own sheds and bamboo racks on the beach. Nearly all choose the latter, to the disgust of some of their would-be customers.

Two not-uncommon religious groups in St. Vincent, the Rastafarians and Seventh-Day Adventists, proscribe the consumption of cetacean products by their adherents. Rastafarianism is a messianic faith that began in Jamaica during the 1930s and has spread throughout the Commonwealth Caribbean and beyond (Lowenthal 1972; Barrett 1988; Savishinsky 1994). Seventh-Day Adventism began in the United States during the nineteenth century and was brought to the Caribbean by missionaries who established the West Indies Union Conference of

Seventh-Day Adventists in 1906 (South Caribbean Conference 2010). Believers in both faiths adhere to the Mosaic dietary (Kosher) laws, which state:

> Of all the creatures living in the water of the seas and the streams, you may eat any that have fins and scales. But all creatures in the seas or streams that do not have fins and scales—whether among all the swarming things or among all the other living creatures in the water—you are to detest. (Leviticus 8:9-10 KJV)

Because cetaceans do not have fins (as such) or scales, they are not Kosher for Jews, nor acceptable to Rastafarians or Adventists. Further, both faiths promote total vegetarianism as a recommended, but not required, lifestyle.

The taboo, sanitary, and religious objections notwithstanding, the majority of respondents in the most complete cited survey (Straker et al. 2000) and in my own research did report consuming meat and/or blubber from whales and dolphins (Table 5.5).

Table 5.5: Consumption of cetacean meat, comparison of results of current research to Straker et al. 2000. Values represent percentage of respondents giving each answer.

	Consume	Do not consume	No reply
Straker et al. (2000)	60.3	38.5	1.2
current study	65	25	10

Marine mammal products tend to be most popular in Barrouallie and along the windward side of the island in villages frequented by vendors. I did not conduct surveys in the Grenadines but informal conversations with people on Union Island and Mayreau indicate that primarily only those with family connections to Barrouallie eat pilot whale meat and blubber and those with ties to Bequia eat humpback whale meat and blubber. Those without family connections to Barrouallie or Bequia generally did not report eating whale meat or blubber. My report of consumption habits in the Grenadines should only be taken as an informal indication and a recommendation for further research.

Conflict

There is relatively little anti-whaling activity based in the Caribbean. Foreign anti-whaling groups occasionally buy advertising space in local newspapers (e.g. Figure 5.49) but there is no example locally derived organized opposition to whaling for the species hunted within St. Vincent or the other artisanal whaling nations themselves. However, whaling in general is an activity that garners international interest and disapproval. According to Raymond Ryan, Chief Fisheries Officer in the Ministry of Agriculture, Forestry, and Fisheries of St. Vincent and the Grenadines (personal communication),

> There is a group of international conservatives coming to CITES meetings and whaling meetings. They can talk until God comes; they can't stop us from doing traditional whaling. We've been doing traditional whaling for hundreds of years. We respect the regulations. When our people depend on food we have no choice.

When I asked Mr. Ryan if he personally ate pilot whale meat, he replied, "of course. It's a native dish. I eat it with breadfruit."

The only active campaign against whaling in St. Vincent came in 2001 when the Sea Shepherd Conservation Society sent its ship, *Ocean Warrior* (since renamed *Farley Mowat*) to Castries, St. Lucia, to document and disrupt the activities of pilot whalers in St. Lucia and St. Vincent (Sea Shepherd 2009). This campaign did achieve its goal of documentation by making photographs of whalers returning to port with a pilot whale onboard. However, before the Sea Shepherd activists could proceed with their mission in St. Vincent, the St. Lucia Coast Guard, acting on reports of harassment of fishermen by the activists, escorted the *Ocean Warrior* out of Castries harbor and requested that the crew restrict its activities to international waters (St. Lucia 2001).

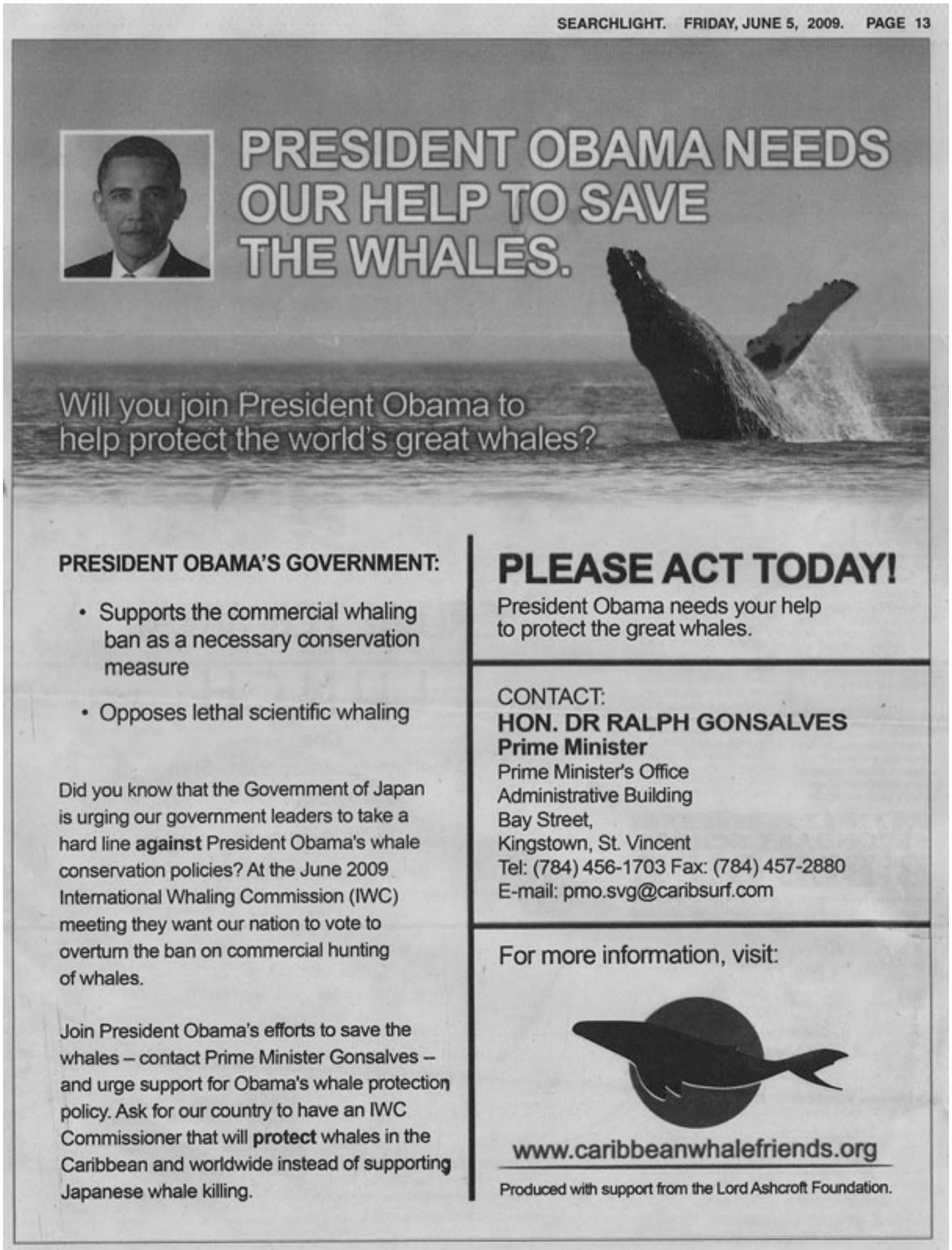


Figure 5.49: An anti-whaling advertisement placed in *Searchlight*, a local St. Vincent newspaper, by an environmental organization based in the UK and U.S.A. Note the phrase, "great whales." This is not a simple statement of the whales' greatness, rather, probably reflects a calculated effort to separate the large, IWC-protected species—the baleen whales and the sperm whale, known in some literatures as "great whales"—from the smaller cetaceans hunted for food by St. Vincent whalers. The advertisement is not, then, subverting Vincentian methods of food-production, except in the case of the humpback whalers from Bequia.

Perhaps the most serious threat to Caribbean whaling is the possibility of a tourism boycott, although the only boycotts proposed have been in response to St. Vincent and the Grenadines' pro-whaling votes at the IWC meetings, rather than directed at the artisanal whaling activities themselves (Sam 1994). These votes, along with the development aid given by Japan, are seen as evidence of "vote-buying." The Sea Shepherd Conservation Society said that it would not promote a boycott on Caribbean tourism over the artisanal whaling operations on St. Vincent and St. Lucia. Sea Shepherd does threaten to promote a boycott of the islands' tourism industries in the event that the St. Lucia and St. Vincent governments allow Japanese whalers to operate in the area (McDaniel 2001)—not something that either island government is considering, to my knowledge.

To the whalers themselves, the conflict surrounding their trade is puzzling. One whaler expressed his perspective thus:

> Why are people so concerned about these mammals' suffering when human beings are suffering so much and they don't care? Places like Africa, where people are dying and we have to give account to God for that and [not for] these animals without a soul, who die and that's it?

Indeed, this comment speaks to a cultural divide between whaling and non-whaling peoples that is well known to anthropologists (e.g. Freeman 1990; Kalland 1993a, 1993b, 1998, 1999; Peterson 1993; Goldschmidt 2005; Kalland and Sejersen 2005). Lacking consensus on the existential value of a whale and whether or not whaling is ever permissible, and without allowing the simultaneous existence of contradictory value systems, how can people of different nations and cultural backgrounds ever come to an agreement on the subject of whaling? The concept of a whale as a source of food and the concept of a whale as a living wild animal are both real concepts. That they coexist, albeit not always peaceably, testifies to the importance of incorporating a study of culture into decisions made on the use (or preservation) of natural resources (Spoer 1956) and into the study of economic geography in general (Buchanan 1935, Peet 1997). It also provides an example of the conflict between Bulliet's (2007) "domestic" and "post-domestic" societies.

Conservation

Apart from the IWC quota on humpbacks for Bequia whalers, there are no whaling regulations in St. Vincent and the Grenadines. In fact, marine mammals are not mentioned at all in the country's Fisheries Regulations (SVG 2001, 2006). This is not to say that that the artisanal whaling operation at Barrouallie is unregulated. Rather, it is regulated by its own cultural traditions in the absence of formal law.

Geographers, anthropologists, and ecologists debate the ability, foresight, and willingness of people whose lives and livelihoods are directly dependent upon the exploitation of natural resources to conserve those resources (Brookfield 1962; Redford and Robinson 1985; Alcorn 1994; Young 1999; Berkes et al. 2000). Views range from Hardin's "Tragedy of the Commons" (1968) to Redford's "Ecologically Noble Savage" (1990). In the context of St. Vincent whaling, it is not so much the application of specialized traditional environmental knowledge (TEK) that accomplishes conservation, as it is the collective limitation of hunting effort driven by certain cultural norms that exist in Barrouallie and throughout the rest of the island.

The primary way by which these norms bring about conservation is the limitation of Vincentian whaling activities to the village of Barrouallie. There is no intrinsic quality about Barrouallie that predisposes it to be "the blackfish town" (Anonymous 1999). In fact, pilot whales are most often sighted to the north and east of St. Vincent, far from Barrouallie and much closer to the fishing village of Owia and the population center of Georgetown. However, whaling operations that have arisen in other villages such as Rose Bank, Wallilabou and Cumberland did not last longer than a generation (Caldwell and Caldwell 1971). Anytime I mentioned to a Vincentian acquaintance that my research involved whaling, I was told that I must go to Barrouallie. At the Barrouallie Fisheries Cooperative, employee Prislet Francis simply remarked, “the knowledge is only here.”

The only explanation that anyone could give as to why Vincentian whaling had remained in Barrouallie, alone, was “tradition.” This tradition has effectively created a system of “limited entry” (Johannes 1978, 351) by which all whalers and vendors are concentrated in one village and certain aspects of the national pilot whale economy—price, competition, and supply—are reduced to the village level. Because crowds gather at the dock when the whaling boats return each day and observe the wholesale transactions made openly, prices paid by vendors are public knowledge. Whalers, competing only with other local whalers, decrease their hunting pressure immediately when supply is high and prices are low.

Were there whaling operations based in other villages, each would create its own local economy in which the wholesale prices paid by vendors varied, just as the disparate pricing of bundles of whale meat sold in the villages. Wholesale prices may be high in one village and low in another, prompting whalers to continue their efforts and sell to the vendors paying the highest price. As it is, there is only one village where vendors are based, and therefore only one local whaling economy, though the product is distributed nationally.

This geographical limitation in turn limits the hunting pressure and creates a form of market-driven conservation. This stands as a counterexample to Noel Castree’s (1997, 11) argument that, when the extraction of a living natural resource is conducted for profit by actors in a capitalistic society, the destruction of the resource base is part of the system’s “normal functioning." In the context of St. Vincent whaling, it seems that the capitalistic structure of the whaling operation—geographically limited to one village—has aided, not subverted, conservation efforts.

The second way in which the local culture encourages conservation is through the unwillingness of the whalers to upgrade their technology to something more efficient. We have already seen that the whalers readily adopted motorboats and harpoon guns in the past. However, according to Jennifer Cruickshank-Howard, of the Fisheries Division, there has been little to no impetus amongst whalers to develop the technology of their operation beyond the level attained in the 1960s. Fisheries authorities would like to see the storage and processing facilities improved but thus far have made no efforts to alter the technology employed by the whalers themselves. Both the whalers and the authorities seem content that the technological status quo provides an adequate supply of whale meat and blubber without overtaxing the resource.

CHAPTER 6: THE FAROE ISLANDS

Physical Setting

Nearly devoid of trees, the Faroe Islands (sometimes referred to simply as *the Faroes*, and alternately spelled *Faeroe*) seem to have just risen abruptly from the North Atlantic Ocean (Figure 6.1). This archipelago of eighteen islands (Table 6.1) and numerous islets and reefs lies at the center of a triangle that could be drawn between Iceland, Scotland, and Norway (Figure 6.2). In total the Faroe Islands cover 1,399 km^2 (540 square miles) (Guttesen 1996a). The closest land to the Faroes is the island of Foula, in the Shetlands (300 km [186 miles]), and the closest mainland is Norway (675 km [419 miles]). Though the archipelago lies at a higher latitude (62°00′ N) than southern Greenland, the moderating effects of the Gulf Stream produce a much milder climate than might be expected.

Figure 6.1: The west coast of Suðuroy, a typical example of the natural Faroese landscape.

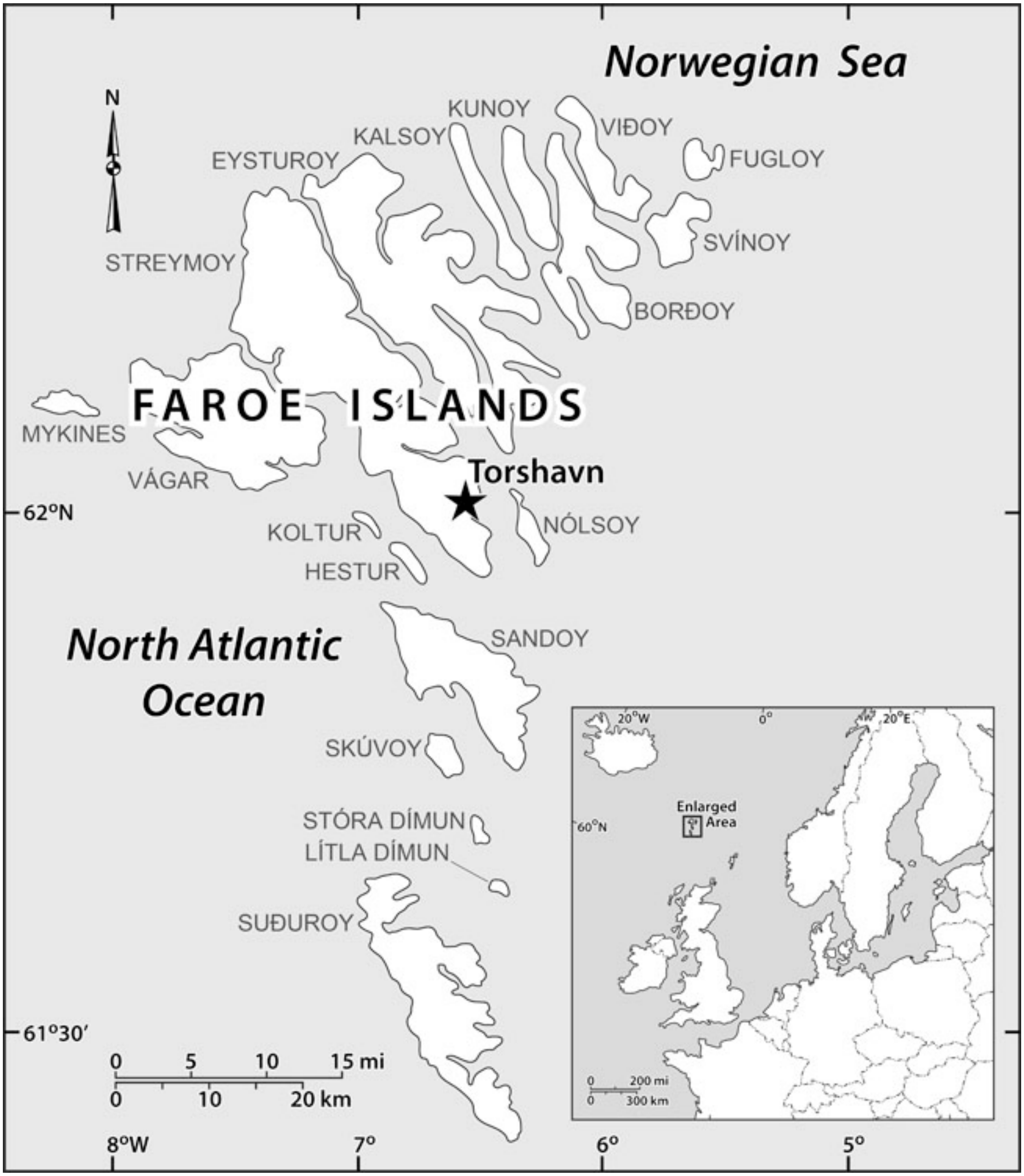


Figure 6.2: The Faroe Islands, with inset map showing the archipelago's location. Cartography by C. Duplechin, LSU Geography and Anthropology.

Table 6.1: The 18 Faroe Islands, listed by area and population (Hagstova Føroya 2009, 7). Note: Total land area includes several islets not counted in the sum of the 18 islands.

Rank (area)	Island Name	Land Area (km^2)	Population (January, 2009)
1	Streymoy	374	22,269
2	Eysturoy	286	10,887
3	Vágar	176	3,067
4	Suðuroy	165	4,844
5	Sandoy	111	1,383
6	Borðoy	95	5,004
7	Viðoy	41	611
8	Kunoy	35	160
9	Kalsoy	31	119
10	Svínoy	27	40
11	Fugloy	11	40
12	Nólsoy	10	248
13	Mykines	10	17
14	Skúvoy	10	47
15	Hestur	6	32
16	Stóra Dímun	3	8
17	Koltur	2	2
18	Lítla Dímun	1	0
Total		1,399	48,778

Land

The highest point in the Faroe Islands is the mountain Slættaratindur on Eysturoy at 882 meters (2,894 feet) above sea level. The largest lake is found on Vágar and is called either Leitisvatn or Sørvágsvatn, depending upon which side of the fiercest Faroese geographical debate one takes. The lake (often simply called *Vatni*, or, "the Lake" to avoid trouble) lies between the villages of Miðvágur and Sørvágur and residents of each prefer to call the lake by their own local name. The Faroese government cartographers have compromised on the placename on the official 1:100,000 map by using both names, Leitisvatn on the Miðvágur side and Sørvágsvatn on the Sørvágur side (Figure 6.3). On the official tourist map, the lake is called

Sørvágsvatn and in the annual statistical digest, it is noted as Leitisvatn. Perhaps the local peacemaking tradition of referring to it as “the Lake” is best.

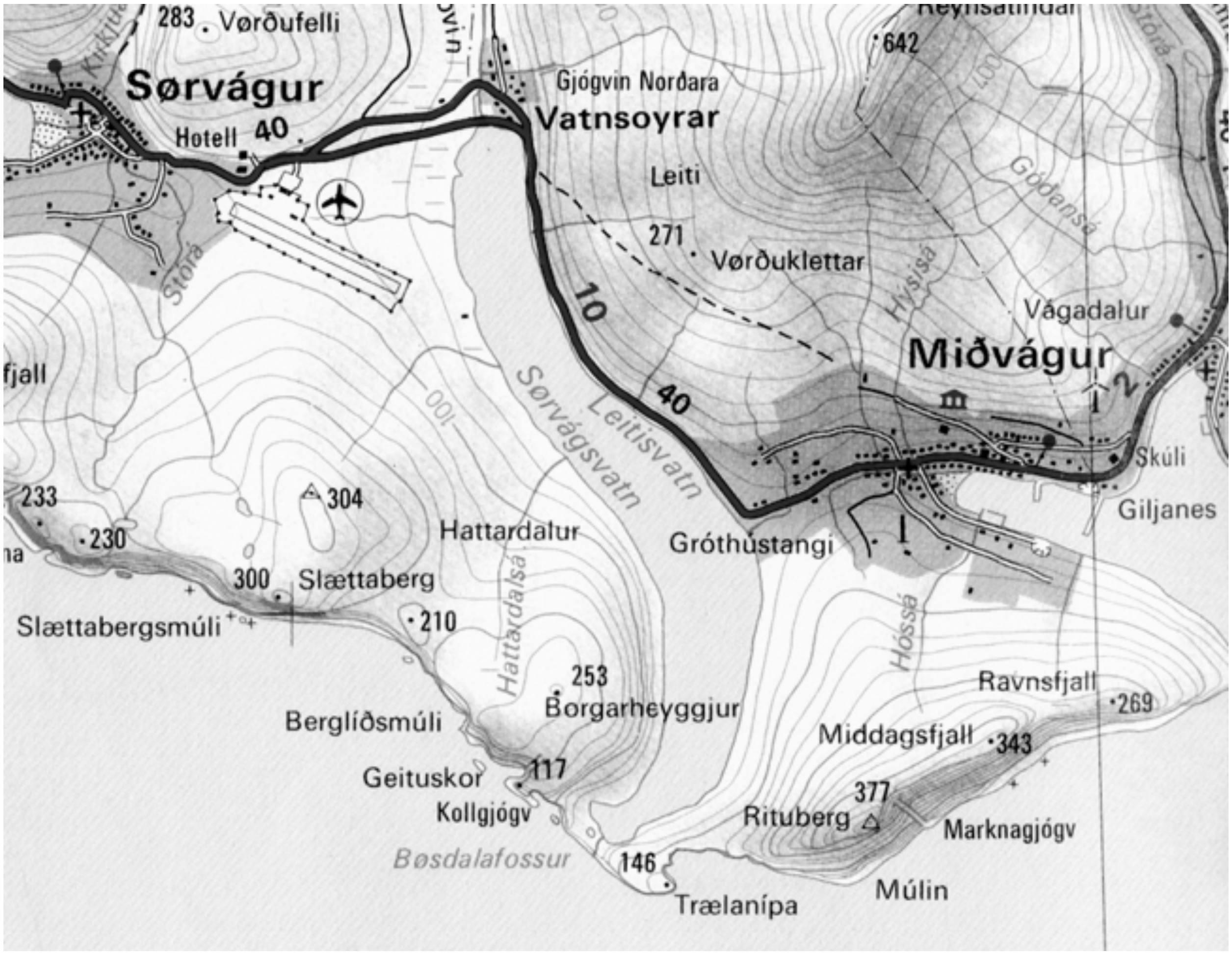


Figure 6.3: "The Lake." Source: Føroyar Topografiskt Atlas 1:100,000.

Geologically, the Faroe Islands represent an old basalt plateau that has been dissected by glaciers and the sea (Rutherford and Taylor 1982; Rasmussen 1996). The archipelago was formed in four distinct phases of volcanic activity, interspersed with at least one long period of inactivity during the Tertiary Period (65 million to 1.8 million years before present). These phases are summarized below in Table 6.2. There has been no volcanic activity in the Faroes during recorded human history. During the Quaternary Ice Age, the Faroes were heavily glaciated, as is evidenced by the deeply fjorded coastline, U-shaped valleys, and *roche moutonnées* that indicate the direction of glacier flow (Rasmussen 1996).

Table 6.2: Phases of volcanic and geologic activity, their resulting landforms, and locations where evidence of each has been gathered. Summarized from Rasmussen 1996, 34-36.

Phase	Result	Some Evidence Locations
Crust-splitting eruptions, extensive lava flows	Lower basalt series	Suðuroy, Mykines, Vágar
Pause in volcanic activity	Erosion, deposition of coal-bearing series in shallow lakes	Suðuroy
Explosive volcanic phase, little lava, much ash, lapilli	Consolidated loose material, tuff-agglomerate zone	Suðuroy, Vágar
Lava-producing phase	Middle basalt series	Suðuroy, Vágar, Streymoy, Eysturoy
Rhythmic volcanic activity	Upper basalt series, alternating with tuff	Northern and Eastern islands
Subterranean subsidence and settling	Steep fractures, intrusive bodies	Streymoy, Eysturoy

Narrow straits separate the 18 islands of the archipelago and there is no island that is not visible from at least one of its neighbors in clear weather. Fixed links abound in the northern part of the Faroes, where a bridge, two causeways, and two undersea tunnels reduce the islands' relative insularity and essentially turn six islands—Vágar, Streymoy, Eysturoy, Borðoy, Kunoy, and Viðoy—into one drivable region. To the foreign researcher traveling by car through the north-central Faroes, it can be challenging to tell where one island ends and the next begins, owing to the interconnectedness of the six linked islands of the archipelago—centrally located and home to 86.1 percent of the population (Hagstova Føroya 2009). Eleven intra-insular tunnels connect communities that are separated by topography that would prohibit (or prolong) travel by surface roads. Regular ferry routes and a government-subsidized helicopter service provide access to islands not linked by bridges and tunnels. The lesser islands of Mykines, Kalsoy, Svínoy, Fugloy, Koltur, Hestur, Nólsoy, Skúvoy, and Stóra Dímun, with a combined population of 553—just 1.1 percent of the population, are linked by ferry and helicopter services but no fixed links. This situation begs the question of cause and effect, with lack of government sponsorship for infrastructure developments and internal migration from the periphery to the center each contributing to the other. South of Streymoy, the large islands of Sandoy and Suðuroy are home to 6,227—12.8 percent of the population—and remain unlinked to the rest of the archipelago save for the ferry and helicopter connections. Perhaps related, both islands have experienced lower-than-average island-wide growth rates, and depopulation in several villages, since the Second World War (Guttesen 1996a).

Atmosphere

Because of its oceanic, high-latitude position, the Faroese capital, Tórshavn (TOR-ush-hown), is traditionally invoked in discussions of continentality (Johansson 1926; Hela 1953; Trewartha 1961; Driscoll and Fong 1992). The concept of continentality was formalized by Victor Conrad in the mid-twentieth century to be used as an indicator of the effects that large landmasses have upon the temperature ranges of their inland locations. Index of continentality is defined by the following equation,

$$k = \frac{1.7A}{\sin(\phi + 10^\circ)} - 14,$$

in which A represents the annual range of temperature (˚C), ϕ is the latitude, and k is the resultant index of continentality (0-100). The higher the index, the greater is the result of a landmass on the climate of a given location (Conrad 1946). In discussions of continentality within climatology literature, Tórshavn (k=0) is often cited as the example of an extreme oceanic (or non-continental) environment, with equal attention given to Verkhoyansk, Russia (k=100), the most extreme continental environment.

What Tórshavn's status as the world's most oceanic environment means for the Faroese climate is typically mild winters considering the latitude, regular precipitation throughout the year, and little variation in maximum and minimum average monthly temperatures. According to the Köppen system of climate classification, the Faroe Islands are one of the few locations in the *Cfc* category (maritime subarctic), meaning that the Faroes experience a mesothermal climate (average summer temperature above 10°C [50°F], and lowest winter temperature between −3°C and 18°C [27-64°F]), no wet/dry seasonality, and three or fewer months with mean temperatures above 10°C [50°F] (Köppen 1900; Kottek et al. 2006).

In the wry words of an early twentieth century geographer writing about household gardens in the Faroes, these "subarctic regions are not altogether desolate wastes" and "their short summers may be pleasant" (Harshberger 1924, 404). Indeed, marketers of international tourism are currently discovering the Faroes as quite the desirable holiday destination. This discovery corresponds with an international trend of increasing interest in the world's "cold-water islands" both within the tourism industry and academic treatments of tourism (e.g. Baldacchino 2006a). The mainstreaming of cold-water island tourism was confirmed in 2007 as the Faroe Islands were named the #1 island destination by a National Geographic panel of geographers, ecologists, and travel experts (Tourtellot 2007).

Of course the difference between climate and weather is very apparent to anyone who spends time in the Faroes. While the temperature and precipitation are characterized by their small annual variability, both can vary significantly throughout the course of a day. Talk of the weather is common in Faroese society and meteorological conditions have a direct effect on all manner of daily life, including whaling. Much of the volatile Faroese weather can be attributed to the islands' geographical position in the North Atlantic Ocean at the confluence of the warm, humid Azores anticyclone and colder, drier air masses originating in the Arctic. The interaction of these air masses often creates low-pressure zones, characterized by dense cloud and fog cover, heavy precipitation, and a strong southwestern wind—all common features of Faroese weather (Søgaard 1996). While conducting fieldwork in the Faroe Islands, I was introduced to at least two weather phenomena that I had never before encountered: freezing fog and *sirm*—a sort of upward-falling rain caused by heavy fog and updrafts of wind, against which umbrellas are useless.

<u>Ocean</u>

Of greater importance to the subject matter of this dissertation than terrestrial landforms, climate, and weather are the oceanographic conditions and undersea topography of the area surrounding the Faroes. Just as the Faroe Islands weather is heavily influenced by the convergence of two large air masses, the area's sea surface conditions owe their volatile character to the convergence of two major ocean currents: the warm North Atlantic Current and the cold East Icelandic Current (Hansen 1996). Beneath, on the ocean floor, a series of ridges separates the warm water of the Atlantic Ocean from the cold Norwegian Sea. The large feature from which the Faroe Islands rise is the Faeroe-Rockall Plateau, stretching from the Faeroe Shelf southwest to the center of the map below (Figure 6.4).

Seaward from the coast, the underwater bathymetry shows a steep decline to about 15 meters (49 feet), followed by a gentle slope to about 200 meters (656 feet) (Bloch 1982). The small-scale bathymetry near the coastline varies greatly. Some beaches are broad and sandy, sloping gently from the waterline; others are rocky or muddy. Some feature a *marbakki* (mar-BA-chee)—a steep drop of 1-2 meters (3-6.5 feet) not far offshore that directly affects whaling activities, as shall be discussed below.

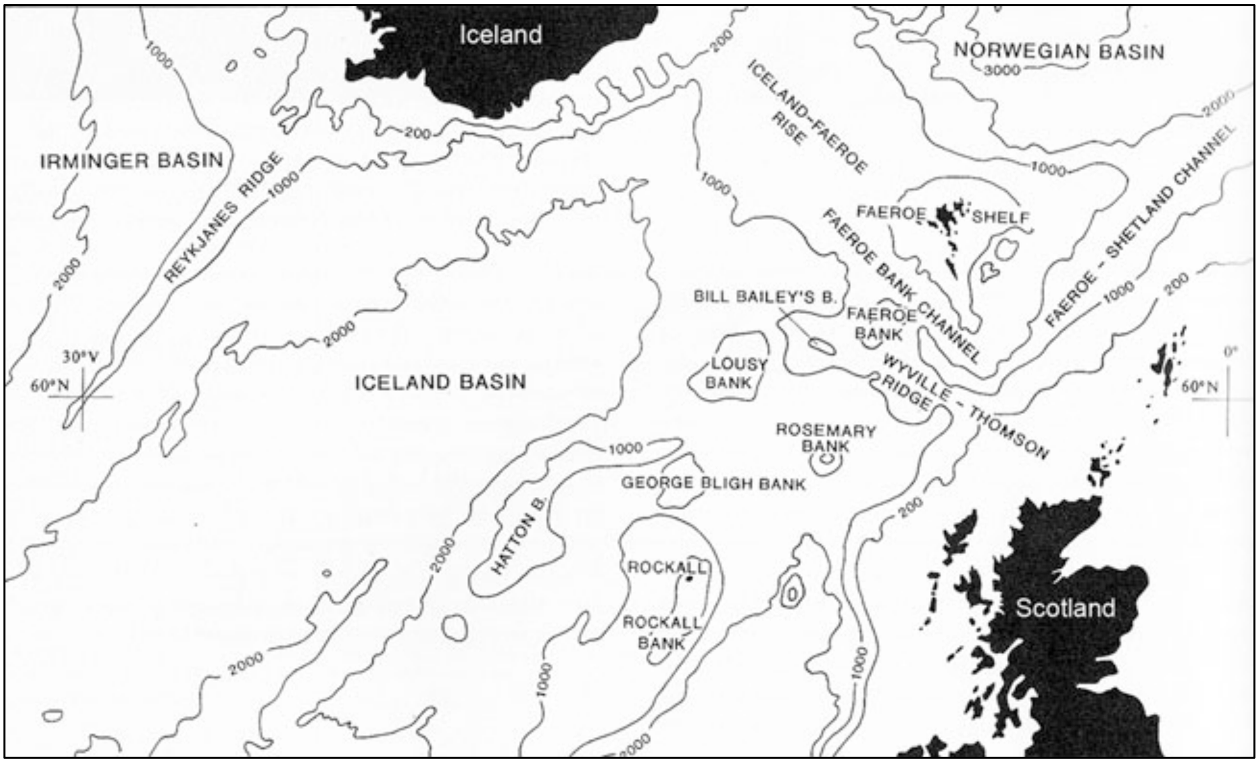


Figure 6.4: Bathymetry surrounding the Faroe Islands (upper right, not labeled). Source: Hansen 1996, 28. Used by permission.

Because of the nearby bathymetry, and their location at the confluence of great warm and cold currents, the waters around the Faroe Islands are rich fishing grounds. The presence of fish and especially squid attracts whales. Bathymetry plays a role in attracting whales to the area and it also affects whaling activities, as will be discussed below.

Historical Setting

Environmental historians and historical geographers have conducted limited research into the past human-environmental relations in the Faroe Islands. In his introductory paper, the guest editor of a special issue of the journal *Human Ecology* devoted to the Faroe Islands remarked that contributors to the volume had "prised open the lid" to an otherwise "unknown, a black box" that was the story of human-environmental interactions on these "isolated…

specks of rock" (Edwards 2005b, 586). Edwards' special issue (2005a) does much to sort through the sparse records of past investigations and to present new information from current researchers, both Faroese and foreign. The human history of the Faroe Islands can be divided into four political periods: pre-Norse, Norse (Viking), Danish, and Home Rule. Using these convenient period divisions, I will present a summary of the environmental and political history of the Faroe Islands, followed by an historical look at Faroese whaling traditions. The papers included in Edwards' volume serve as my major sources and I will repeat some analyses that I have previously published as a book review in *Island Studies Journal* (Fielding 2008).

Pre-Norse

Most written histories of the Faroe Islands begin with the inhabitation of the islands by Irish monks in the eighth century (e.g. Williamson 1948; Rutherford 1982; Kerins 2008), including five of the seven papers in the Edwards volume (2005a). Dicuil—a geographer and himself an Irish monk writing in AD 825—placed the monks there in his *De Mensura Orbis Terrae*, the oldest written account of the Faroes (Sauer 1968). Additionally, some have interpreted St. Brendan's "sheep island" and "paradise of birds" to be islands of the Faroes (Sauer 1968; Severin 1978), though they have also been associated with Irish or Scottish islands (O'Donoghue 1895). This uncertainty evidences the "toponymic drift" characteristic of attempts to assign modern geographical locations to Brendan's legendary places (Mathewson 1989). It is interesting to note that Brendan's voyages were launched based upon information provided by an older monk—St. Barinthus—who had already visited the islands in question (O'Donoghue 1895). Additionally, at nearly each landing place, including those identified with the Faroes, Brendan's crew were met by inhabitants—some Irish Christians, others Pagan. Although skeptics point out that no archaeological evidence has been uncovered for a pre-

Norse human presence in the Faroes (Arge et al. 2005; Edwards 2005b), there is historical (Thorsteinsson 2005, citing Dicuil AD 825), and place-name (Zachariasen 1988 [cited in Guttesen 1996b]) evidence that they were there first. Less widely accepted is the palynological evidence of pre-Norse cereal cultivation, presumably by the Irish (Jóhansen 1971, 1978; Joensen 1982; Edwards 2005b).

Dicuil is the best source of information on pre-Norse Faroese history. He explained that the Irish monks deserted the Faroes "because of the Northern pirates" (Debes 1989, 24 [cited in Kerins 2008, 44]). Among historians who accept a pre-Norse Irish presence in the Faroes, the common understanding is that the monks remained until the Norse Vikings started frequenting the islands and then moved on in the ninth century. Their destination is unknown. The intriguing possibility of an escape route to North America by way of Iceland and Greenland is supported by scholars (Nansen 1911; Sauer 1968; Sawatzky and Lehn 1976). The hypothetical voyage was reproduced by a British, Irish, and Faroese crew during two summers in the 1970s—overwintering in Reykjavík—using only pre-Viking technology aboard a *curragh*—a leather-hulled boat built by hand according to the ancient Irish design described in the *Navigatio Sancti Brendan Abbatis* (Selmer 1989). This reenactment showed that at least the Brendan Voyage *could* have been done (Severin 1978). If the Irish had indeed been in the Faroes, they tread lightly upon the land, as no irrefutable physical evidence has yet been found to prove their presence.

<u>Norse</u>

According to Sauer (1968), the first inhabitants who left a mark on the Faroe Islands landscape were the Norse. *Faereyingasaga*—the pieced-together *Saga of the Faroe Islanders*—records the Norse arrival during the reign of Harald Fair Hair, King of Norway. Sauer (1968, 85) goes on to explain that this coincided with a "great Viking exodus to escape the rule of Harald" and would have been during the late ninth century. Arge and colleagues (2005) mapped the Norse settlement patterns from the ninth century onward, based upon archaeological and historical evidence. They showed that coastal resources and locations were of high importance to these settlers. In addition to these natural resources, the Norse brought along domesticated species including sheep, goats, cattle, pigs, horses, and cereal crops.

The medieval Norse population in the Faroes was small. The settlement pattern seems to have been one of scattered farmsteads—either singly or grouped in small villages—distributed rather evenly throughout the archipelago. These early Faroese prized access to the sea and to flat, arable land. Their government system was parliamentary. Beginning no later than the tenth century, representatives from the various districts met regularly at the *Løgting* (parliament) in Tórshavn on *Tinganes* (parliament peninsula), still the location of Faroese government offices today.

In 1035 the Faroes were formally politically united with Norway but remained relatively free to trade independently (Joensen 1982). Beginning in the thirteenth century, however, all trade was directed through Bergen in a government-directed monopoly, beginning a period of isolation interrupted almost exclusively by raids from English, Dutch, French, and later, Barbary pirates (Williamson 1948; Joensen 1982; Gibson-Lonsdale 1990). The isolation would continue, under different colonial leadership, until Denmark lifted the monopoly in 1856. This economic isolation brought about a cultural isolation as well, allowing Faroese peasant folkways, language, and national identity to remain virtually uninfluenced for many centuries (Williamson 1948).

In 1537, Norway entered a political union with Denmark, and brought the Faroes along (Boyeson 1900; Wåhlin 1989). This union lasted nearly 300 years—an interim period, during which the Faroes were both Norwegian and Danish, politically. In 1814, when Norway was ceded to Sweden, the Faroes, Iceland, and Greenland remained with Denmark thus beginning the Danish period of Faroese history (Williamson 1948; Wåhlin 1989).

Danish

The Faroe Islands were incorporated into the Danish Kingdom as an *amt*, or county. The Løgting continued to meet during this period but the crown limited its power to the proposal, rather than the enaction, of legislation (Williamson 1948). Slowly during the Danish period, a movement for some form of independence began to arise.

It was into this atmosphere of cultural development within forced isolation and disconnected rumblings of self-determination that the Faroese national movement was born. On 22 December 1888, the Faroese newspaper *Dimmalætting* carried the announcement that a meeting would be held on Boxing Day in which ways "to defend the Faroese language and the Faroese customs" would be discussed (cited in Wylie 1989, 5). The meeting was well attended, as was a follow-up meeting held in January. Historians view the first of the meetings, known as "The Christmas Meeting," as the moment that the Faroese national movement was institutionalized (Wylie 1989; Østergaard 1992; Ackrén 2006).

The movement was a decidedly uphill one. Faroese, at the time of the Christmas Meeting, was not a unified language, but rather a system of related dialects (Østergaard 1992). The first common written language was introduced in the mid-nineteenth century and was gradually accepted by the public (Wåhlin 1990). The language of government, church, and the schools was Danish. The history of the Faroe Islands, along with its mythology, was imported from Norway and Denmark (Østergaard 1992). What the new national movement strove to do was to replace the system of mainland cultural and linguistic hegemony with a local culture and language, intentionally constructed from the rich, yet diverse, cultures and dialects that had arisen in the Faroe Islands over the preceding centuries. To do so, there would have to be a concept of unification, and central allegiance and identification, constructed to replace the local identities that Faroese people drew from their villages and the national identification imported or imposed from Europe (Østergaard 1992).

The Faroese national movement was successful in many ways. It established a unified Faroese language as the dominant language in the Faroes, preserved pride in local folk culture, and produced an independent Faroese history (Østergaard 1992). Less immediate was the goal of political and economic independence, the realization of which has come in stages since the Christmas Meeting but is yet to be fully established.

During the Second World War, Iceland—also a part of the Danish Kingdom—formed an independent republic while Denmark was Nazi-occupied (Karlsson 2000). The British had occupied the Faroes during the War, an experience that showed some Faroese that they too could function independently from involvement with Denmark. Between 1946 and 1948, with the possibility of independence on the minds of many Faroese, negotiations were carried out between representatives from the Faroes and Denmark, finally resulting in the establishment of Home Rule in 1948 (Kallsberg 1970). For the purposes of this brief history, this act ends the Danish period, though for many Faroese—including the twenty-three percent who voted with the independence-oriented Republican Party in 2008 (Hagstova 2009)—the Danish period will only end with full Faroese independence.

Home Rule

Today the Faroe Islands are an autonomous province of Denmark, granted home rule and the official status of "a self-governing community within the Kingdom of Denmark" (Kallsberg 1970). Since 1948, the topic of full independence has been discussed within Faroese public and political discourse (Ackrén 2006). Denmark supplies the Faroes with an annual subsidy, staffs police and military forces, and handles some international representation, though the Faroese Home Rule government handles most domestic affairs, including regulation of whaling, and an increasing amount of foreign affairs.

Denmark is a member state of the European Union (EU) but the Faroes and Greenland are not included in this membership. Because of this unique arrangement, Faroese citizens can choose either a red Danish EU passport or a green Faroese passport. Travel between the Faroe Islands and Denmark does not require a passport, nor do Faroese citizens require any sort of special permission to live, work, or study in Denmark.

The Faroe Islands and Denmark use the same currency, the Danish *króna*, although the Home Rule Government of the Faroe Islands prints its own banknotes. (Despite Denmark's EU membership, it does not use the Euro). These Faroese *krónur* (the plural form of the word) are traded on par with their Danish counterparts with no exchange fees at Danish or Faroese banks. Indeed they are merely a local version of the same currency, intended for use within the Faroe Islands only and unfamiliar to most Danish retailers.

Whaling History

According to Kate Sanderson (1992, 27), it is "very likely that some form of deliberate exploitation of whales has taken place in the Faroes from the earliest days of Norse settlement." Sverri Dahl (1971, 69 [cited in Sanderson 1992, 27]) cites archaeological evidence for the presence of pilot whales in the early Faroese diet dating to the “Viking-Age,” which is generally defined in the Faroes as lasting from AD 800 to 1035 (Edwards 2005b). The mere presence of whalebones in a midden does not indicate active hunting of whales. Many coastal peoples have made use of whales that strand themselves on the shore, including the Faroese, as is evidenced by a 1539 map called the *Carta Marina*, created by the Swedish cartographer Olaus Magnus (detail, Figure 6.5). Sanderson (1992, 45) calls Magnus’ map “the earliest known visual depiction of whale exploitation in the Faroes.” However, the description that accompanies the map makes clear the fact that the depiction is of a stranded whale being divided—not a whale that had been actively hunted.

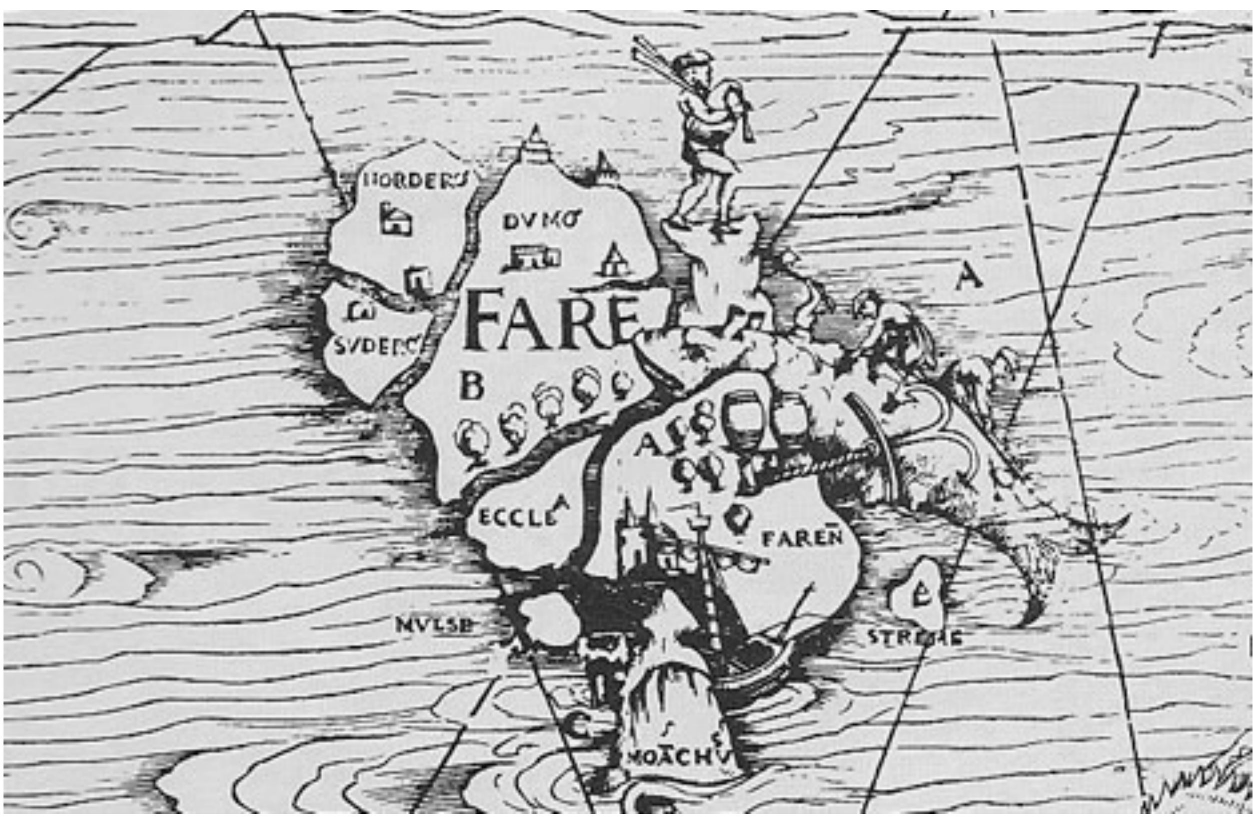


Figure 6.5: Detail from the 1539 chart, *Carta Marina* by Olaus Magnus, showing the Faroe Islands (labeled "FARE") with men flensing a whale that has been fixed to the shore with an anchor. Source: Kejlbo 1996, 19. Used by permission.

The earliest reference to active whaling in the Faroes is from the 1298 *Seyðabrævið*, or "Sheep Letter." This letter, written when the Faroes were under Norwegian rule, detailed matters of sheep farming and other means of livelihood in the Faroes, including whaling. Three conditions by which men may obtain whales are mentioned: the finding of a dead whale at sea, a whale stranding on shore, and the active driving ashore of a whale. For all of these cases, the Seyðabrævið deals with how whales should be divided. Clearly the first two situations cannot be called *whaling* but the third undoubtedly can. Still, the driving ashore of "a whale"—singular in the original—does not equate to the current method of driving entire pods of pilot whales ashore (Sanderson 1992).

The grindadráp is the driving, beaching, and slaughter of a pod of whales, males and females of all ages. While technically speaking, each of these sequential steps is described by its own Faroese term, the entire event is often referred to by the word *grindadráp*—the *coup de grâce*, the climactic step in the process, literally, the "slaughter." The entire process will be described in detail below.

The year 1584 is often cited as the beginning of the grindadráp's recorded history (e.g. Mitchell 1975; Bowles and Lonsdale 1994; Bloch 2007; van Ginkel 2007b) owing to an official accounting book, which records the finding of "four small whale fish" on the uninhabited island of Lítla Dímun (Sanderson 1992, 54). However, as Sanderson and Joensen have each shown, the 1584 record really is a case of stranded whales and not whales being driven ashore (Sanderson 1992; Joensen 2009). There are reasons both biological and cultural to believe that this event was not a grindadráp.

First, as Sanderson (1992, 54) points out, the accountant records the value of the four "small whale fish" as "4 ½ gyllin." A *gyllin* was—and still is—a unit used to measure whales and other commodities in the Norse world (Bloch and Zachariasen 1989). Specific measurement methodology will be discussed below. Any four pilot whales whose combined value was "4 ½ gyllin"—equivalent to 4500kg of meat and 2250kg of blubber, not including the weight of bone and other unusable parts—would have been very large indeed (calculations based upon equivalents given in Joensen 1976). It is rare for four large, probably male, pilot whales to be found alone, stranded or otherwise, however it is quite common for groups of three or four North Atlantic bottlenose whales to strand together, especially on the southern Faroe Islands. Bottlenose whales are generally slightly larger than pilot whales (Culik 2004) and four could likely have been valued at "4 ½ gyllin" (Sanderson 1992).

Second, from at least the thirteenth century until it was abolished in 1934, the practice of *jarðarhvalur*, or landowner's whale, was part of the Faroese legal code (Joensen 1990). Under this rule, the owner of the land upon which a whale or pod of whales stranded or was driven was entitled to a large percentage of the total value of the whale(s). The value of the jarðarhvalur ranged from three-fourths in the thirteenth century to one-half in the thirteenth century (Joensen 1976). Whether this value was amended before or after 1584 is of no concern. The point is that if the four "small whale fish" had been driven ashore intentionally, anyone owning land nearby would have striven to have them landed on his shore, not on the shores of an uninhabited island. Two accounts of whale driving in the Shetland Islands, where the practice of jarðarhvalur was also in effect, describe the chaos that the rule caused when men would argue over the decision to drive whales onto one beach or another, each arguing for his own land whether it was the favorable destination given the conditions of the weather, currents, and whale behavior or not (Sandison 1896; Henderson 1945). The presence of these whales on the uninhabited shores of Lítla Dímun, the smallest and most steeply embanked of the Faroe Islands, is further evidence for their stranding being unaided.

Therefore, the 1584 event should not be considered to have been a grindadráp, but rather the natural stranding of four "small whales" (probably *Hyperoodon ampullatus*) that were found and divided according to the rules of the Seyðabrævið.

The first known reference to something approximating the modern grindadráp is found in a 1632 geography text by the Norwegian Peder Clausson Friis that set out to describe "Norway and Surrounding Islands" (Sanderson 1992, 50). Friis undoubtedly describes the grindadráp in the following passage, cited from Sanderson (1992, 52):

> In the year of our Lord, 1587, 300 small whales were harpooned and slaughtered and driven ashore in this one year in the islands, and such has occurred in ancient times, and usually happens every sixth or seventh year.

It is interesting to note that the practice of whale driving was already considered "ancient" by the time of this writing in the early seventeenth century. However, because this text represents the oldest reference to the Faroese actively driving ashore and killing a pod of whales, the year 1587 should hold the place of the earliest documented grindadráp. Faroese authorities have kept records of all whaling activities from 1587 to the present, with the exception of the years 1641-1708, for which the records are missing (Bloch 2007; Joensen 2009). The record of 1,000 whales in 1664 is questionable owing to its round figure which may indicate an estimate, the lack of a specific date associated with the supposed catch or catches, and its presence within the period of "lost records."

Figure 6.6 represents the catch records for *Globicephala melas* in the Faroe Islands from 1587 through 2009. During this period, the long-term average is 723 whales per year. The average since 1900 is 1,167 whales per year.

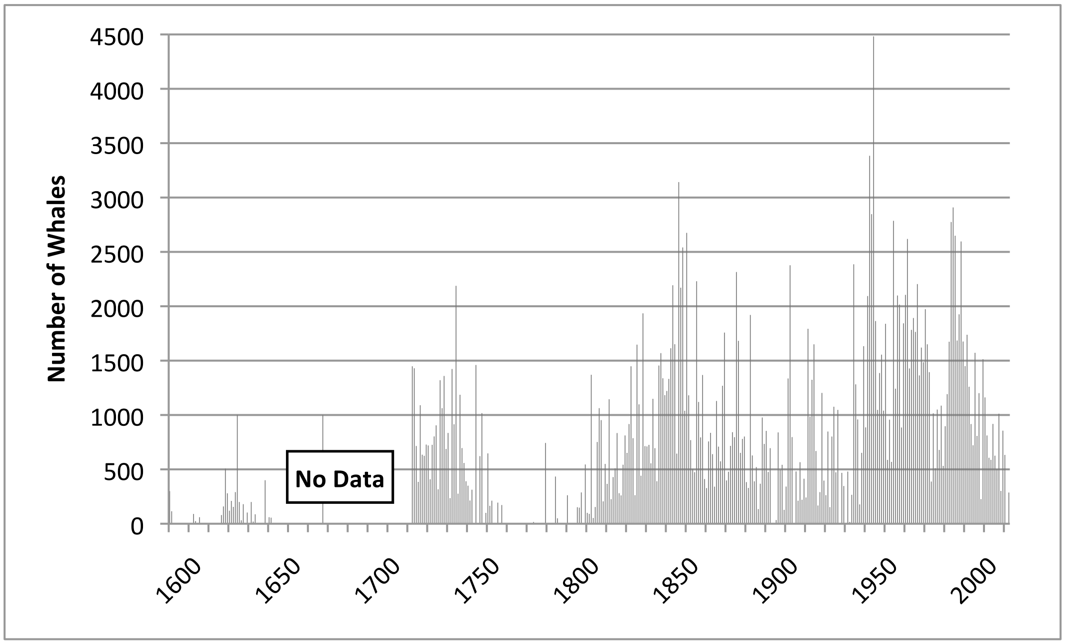


Figure 6.6: Catch statistics for *Globicephala melas* (long-finned pilot whale) in the Faroe Islands, 1587-2009. Total catch = 258,063. Annual average = 605.79. Data source: National Whaling Statistics, Føroya Náttúrugripasavn.

Throughout the history of the grindadráp, the number of whales killed per year has varied widely. There seems to be no connection between whaling records and human population of the Faroe Islands (Figure 6.7). While the human population has increased steadily since the beginning of the nineteenth century—with the exception of a sharp decline owing to the economic crisis of the early 1990s (Hamilton et al. 2004)—pilot whaling catches have risen and fallen, seemingly without any correlation to the number of people who relied upon them as a food source. Many years have seen no whales at all and others have had plenty. Figure 6.8 shows the maximum, minimum, and average number of pilot whales caught during fifty-year time intervals, throughout the whole of the continuous statistical period (1709-2009).

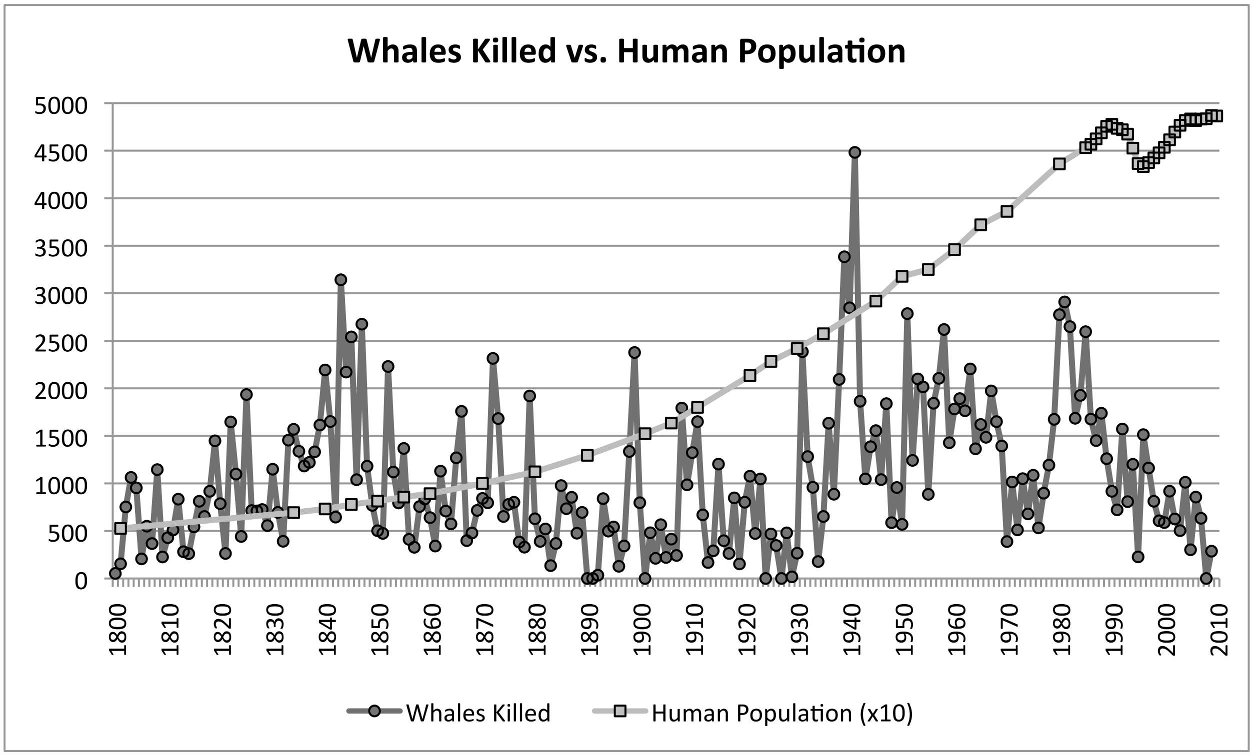


Figure 6.7: Graph showing the records of pilot whale catches and human population in the Faroe Islands, 1800-2009. Sources: Wylie 1987; Hagstova Føroya 2010; National Whaling Statistics, Føroya Náttúrugripasavn.

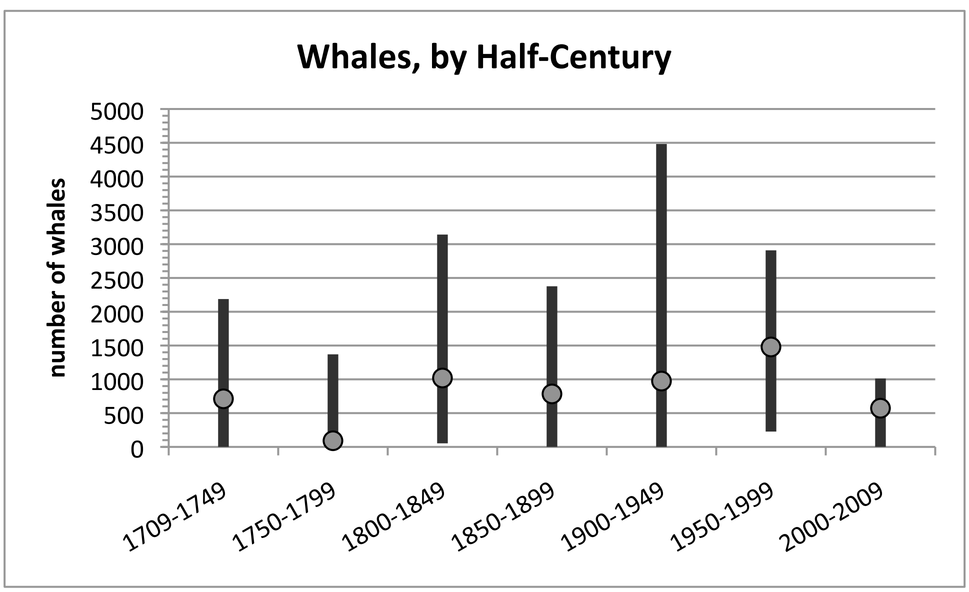


Figure 6.8: Maximum (top of bar), minimum (bottom of bar), and average (circle) annual pilot whale catch, by half-century. Data source: National Whaling Statistics, Føroya Náttúrugripasavn.

From the beginning of the existing continuous records in 1709 to the midpoint of the eighteenth century, the Faroese caught an annual average of 712 whales, in an average of 5.9 drives per year. There were three years during this period with no whales at all.

Between 1755 and 1780, there were only three grindadráp, totaling 759 whales—715 of which were caught in a single drive in 1776. This long period of inactivity meant that a large number of young men grew up without opportunity to learn the skills of the pilot whaler. According to one Faroese ethnographer and historian, this situation "almost brought about the end of pilot whaling" (Joensen 2009, 67-68).

Soon after this eighteenth century dearth of whales came a period of relative abundance, reviving interest and skills pertaining to the grindadráp. During the first half of the nineteenth century, an average of 1,020 whales were caught per year and only two years (1890 and 1891) during the entire nineteenth century passed with no whales at all. There were an average of 6.1 drives per year during the nineteenth century. This abundance of whales and frequency of grindadráp coincided with the nineteenth century awakening of Faroese nationalism that led to the so-called Christmas Meeting in 1888 and eventually to the establishment of Faroese Home Rule in 1948. Scholars have noted the connection between the grindadráp and Faroese nationalism (e.g. Joensen 1990, 2009; Sanderson 1992; van Ginkel 2007b).

Beginning during the increase in whale catches of the nineteenth century, the grindadráp became "an established symbol of Faroese national identity," a status that it retained until the anti-whaling protest movement came to the Faroe Islands in 1985 (Sanderson 1992, 1). One twentieth century American travelogue equated watching the grindadráp in the Faroe Islands to seeing other national symbols, such as "the Great Wall in China or the changing of the Guard at Buckingham Palace," though, added the travel writer, "the spectacle is a bit more bloody" (Millman 1990, 39).

From 1850 to 1949, the average annual catch remained high at 879. However, this 100-year period, centered around the turn of the twentieth century, was marked by a high degree of fluctuation. The maximum annual catch during this period—4,482 whales in 1941—is also the all-time maximum annual catch. However, 12 years during this period saw no whales at all. During the Second World War, while British troops occupied the Faroe Islands, the whaling records show a frequent grindadráp. This may have been due to the increased presence of patrol boats sighting more whales, or to the increased need for meat and blubber since the normal supply routes from Denmark—then Nazi-occupied—were cut off. Some of the richest English-language descriptions of grindadráp, and of the Faroes in general, from the mid-twentieth century were written by these British soldiers (e.g. Norgate 1943; Williamson 1948).

During the second half of the twentieth century and into the twenty-first, the grindadráp continued despite various threats—both environmental and cultural—to its survival (Fielding 2010). This period saw a marked increase in the number of Atlantic white-sided dolphins, locally called *springari*, occurring simultaneous to a decrease in pilot whale catches since the mid-1980s (Figure 6.9). Dolphins are hunted and divided in much the same way as pilot whales. Many people with whom I spoke prefer the taste of dolphin meat and blubber to that of the pilot whale.

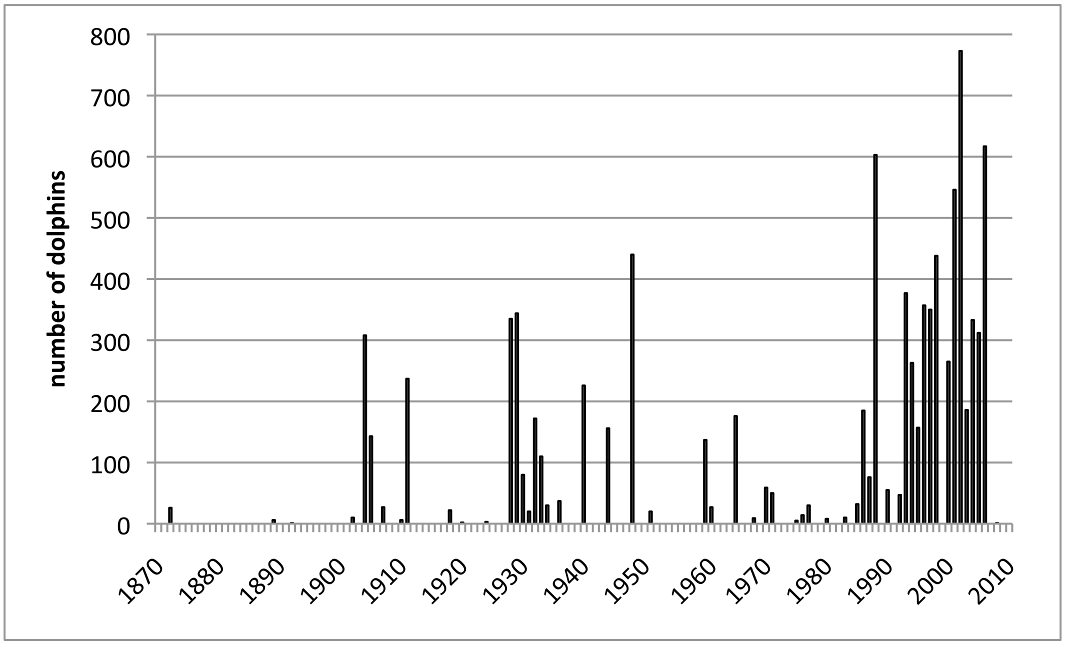


Figure 6.9: Catch statistics for *Lagenorhynchus acutus* (Atlantic white-sided dolphin) in the Faroe Islands, 1872-2009. Total = 9,259. Annual average = 67.58. Source: National Whaling Statistics, Føroya Náttúrugripasavn.

In addition to their artisanal whaling history, the Faroe Islands had an almost century-long commercial whaling operation. From 1894 to 1987 Faroese whalers hunted blue, fin, sperm, humpback, and sei whales (Reeves and Smith 2006). This operation began under the direction of a Norwegian whaler captain, Hans Albert Grøn, with the whaling ship *Urn*. Commercial whaling in the Faroe Islands was taken over by Faroese interests in 1933 and lasted until 1986 (Joensen 2009). The last Faroese commercial whaling station, at the village of við Áir on the island of Streymoy, has now been converted to a museum. The only whaling that occurs in the Faroe Islands today is traditional, artisanal, and non-commercial.

Culture

Whaling Today

Tools

The grindadráp has produced an array of specialized tools. In this section I shall describe the tools used to drive, kill, and process whales in the Faroe Islands but will not discuss the technical use of the tools until the next section, in which I describe the various stages and actions involved in the grindadráp.

Foremost in beauty, utility, and cultural value is the *grindaknívur* (GRIN-dak-nee-ver), or pilot whale knife (Figure 6.10). Faroese ethnographer Jóan Pauli Joensen (2009, 113) calls this knife "the pilot whale hunt's most distinguished piece of equipment… one of the foremost Faroese contributions to Nordic artistic craftsmanship." Traditional *grindaknívar* (the plural form of *grindaknívur*) are completely handmade, but any stout, sharp knife can perform the task of killing a pilot whale. In the Faroes today, one often sees plastic-handled, store-bought knives or hybrid knives that combine a high-quality blade removed from a store-bought knife and placed within a handmade handle. One man with whom I spoke at a *springardráp* (dolphin killing) on the island of Suðuroy explained to me that he uses his traditional knife for the actual slaughter and his store-bought knife to flense and process the carcasses. This decision was based upon the traditional connection between whaling and whaling knives and not any specialization of the two knives for different tasks.

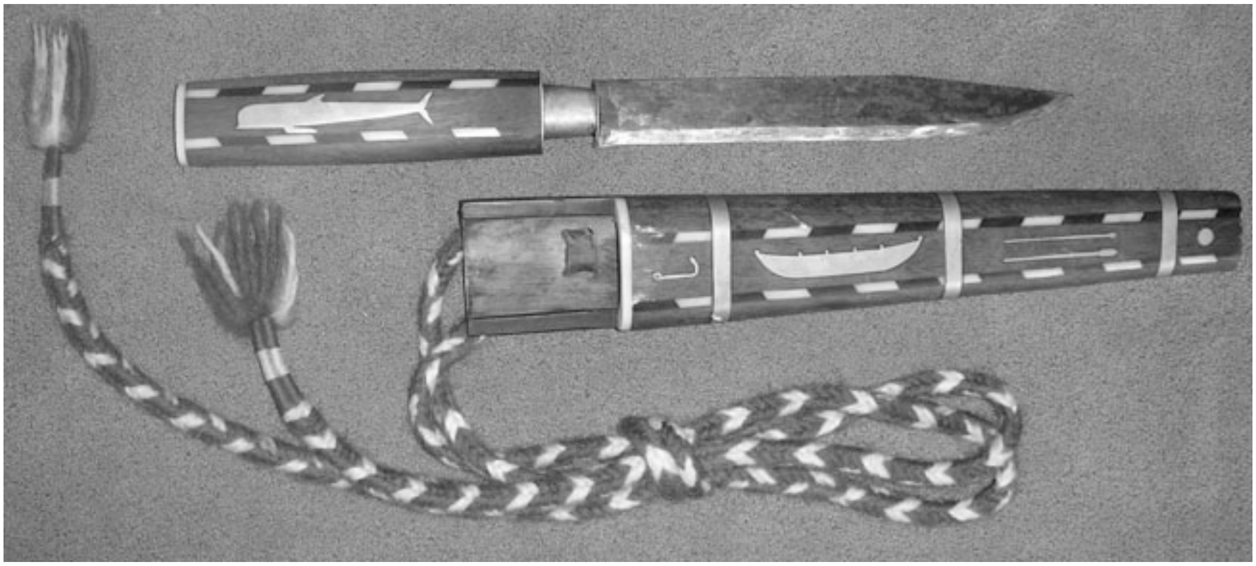


Figure 6.10: A grindaknívur with its sheath and tólvtráðaband.

The knife's handle and sheath are carved from a single block of imported hardwood (the Faroe Islands support very few trees) and are inlaid with brass, bone, silver, and other materials for decoration. Popular knife designs include depictions of whales and traditional whaling equipment such as harpoons, hooks, spears, and boats. Less popular are the abstract designs showing patterns ranging from simple shapes to the heart, diamond, club, and spade from a deck of playing cards. Grindaknívar are usually about 30 centimeters in length. Tied to a leather thong which runs through two holes in the sheath is the *tólvtráðaband* (also spelled *tólvtáttaband*), a colorful cord made from twelve woolen threads and used to tie the knife around the whaler's waist (Joensen 2009). In the past, the colors used in the tólvtráðaband indicated the village from which the knife came, but today most show the colors of the *merkið*—the red, white, and blue flag of the Faroe Islands (Figure 6.11).

Figure 6.11: The *merkið*, the Faroese national flag. Photograph © Eleonora Flach, used by permission.

Until recently, grindaknívar had evolved only slightly in their design. The primary change had been the adaptation of methods to prevent the whaler's hand from slipping down onto the blade (Figure 6.12).

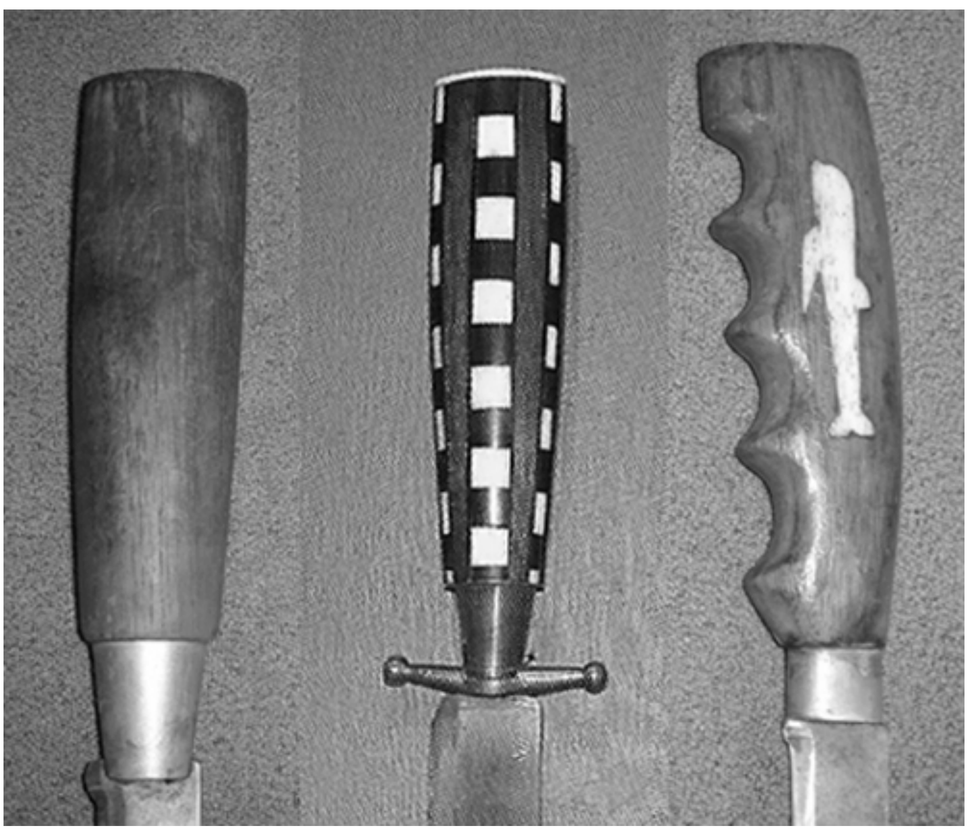


Figure 6.12: The evolution of the grindaknívur handle. Source for center image: Bloch 2007, 32.

During a grindadráp, with men standing waist-deep in the water, cutting through the blubber and muscles of the stranded whales, knives quickly become slippery—coated in a mixture of blood, oil, and seawater. In this condition, the older style knives with smooth, straight handles presented the risk of lacerations to the fingers or palm since there was nothing to keep the hand from slipping down along the handle and onto the blade. The first adaptation was the addition of a hilt, or crosspiece that would stop the fingers from sliding down onto the blade. While they did accomplish the task for which they were intended, these hilts were known to snag on the coarsely woven, loose-fitting woolen sweaters traditionally worn by Faroese men and the hilted knives would occasionally be pulled inadvertently from their sheaths and lost in the sea. Today the hilts are gone and newer grindaknívar have carved into the wooden handles ergonomic grooves that prevent slippage but do not offer any protrusions to catch on the whaler's clothing.

The grindaknívur may be on the cusp of its most dramatic evolutionary step yet. In 1998 Faroese veterinarians Justines Olsen and Kristian Glerfoss created the first prototype of a new knife called the *mønustingari*, or spinal cord knife (Figure 6.13 and Figure 6.14). This knife hardly resembles previous generations of grindaknívar. It is over twice the length but the tip resembles a broad steel arrowhead more than a knife blade. This new knife is meant to be grasped in two hands like a shovel and thrust into the whale, piercing down to—and severing—the spinal cord in one motion. The Faroese government has purchased several of these knives and is promoting their integration into the grindadráp. Reviews are mixed and whalers are cautious of such a radical departure from the traditional knives.

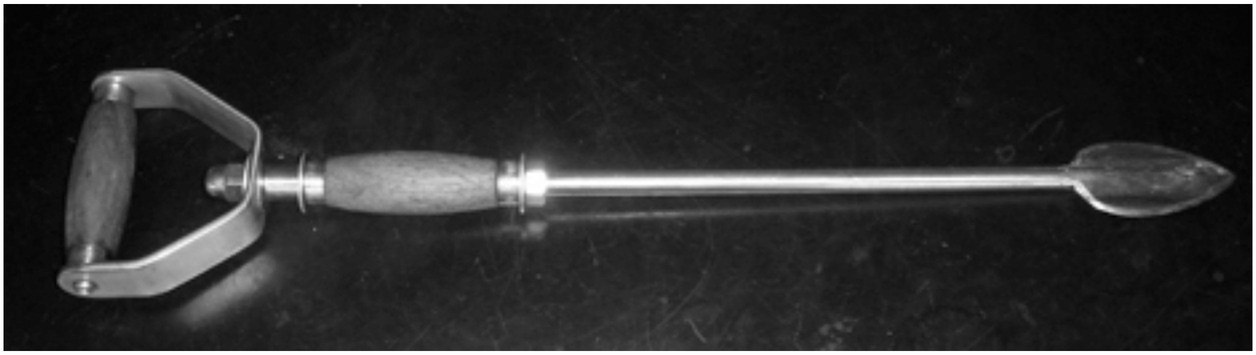


Figure 6.13: The mønustingari.

Figure 6.14: Veterinarian and inventor Justines Olsen holds a prototype mønustingari in its sheath.

Another tool used in the grindadráp is the whaling hook, or *sóknarongul* (Figure 6.15). Resembling a large (50 cm in length) fishing hook, the sóknarongul is the first point of physical contact between whales and whalers. Attached to the hook is a thick nylon or natural fiber rope, many meters long. Generally, sóknarongul are handled by two-man teams: one carries the hook and the other carries the rope, coiled over his shoulder. At the grindadráp, one often sees these hook-rope teams running about on the shore—men connected to one another by a rope and by their roles in the task at hand.

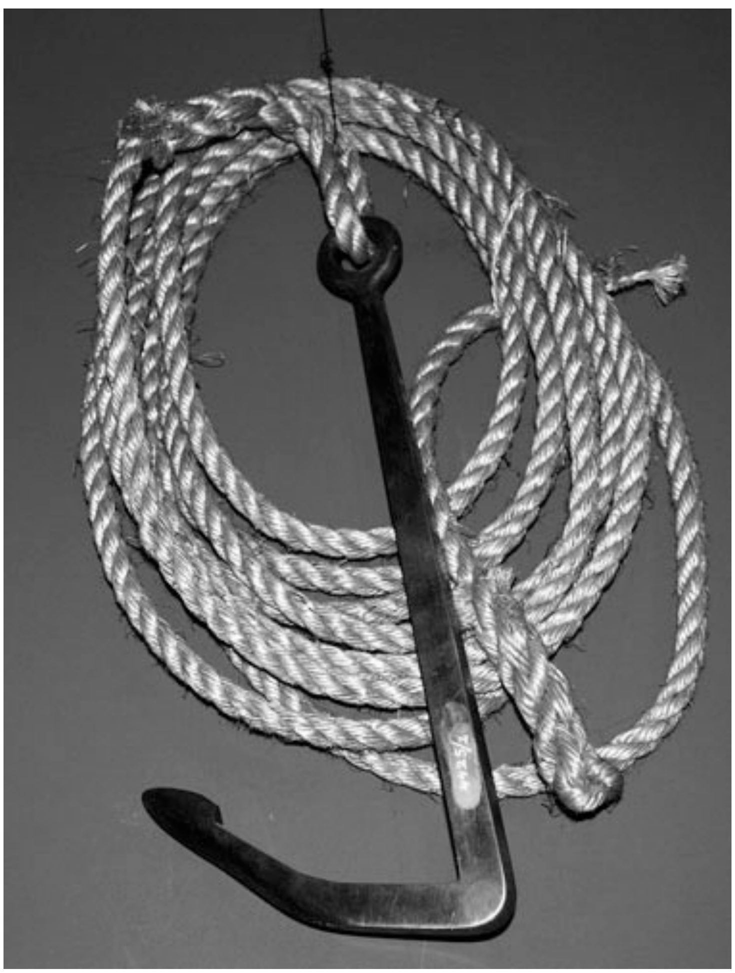


Figure 6.15: A sóknarongul and rope.

In 1993 a different whaling hook was invented: the *blástrarongul*, or blowhole hook (Joensen 2009) (Figure 6.16). Meant to lessen the suffering of the whale as it is being dragged toward the shore, the blástrarongul is a blunted hook that is inserted into the blowhole and does not pierce the whale's flesh (Olsen 1999). The Faroese government commissioned 120 of these hooks during the late 1990s to be distributed throughout the whaling districts, hoping that it would one day replace the sóknarongul. Reviews by whalers are mixed. Some feel it is more humane. Others complain that the hook is not as effective, or that there are not enough of them available, or that it is too difficult to use in the tumult of a grindadráp.

Figure 6.16: A blástrarongul and rope.

The final tool that shall be discussed here is the assessment rod used to measure the whales after they have been killed. Since at least 1584, stranded and hunted whales in the Faroe Islands have been measured in a unit called *skinn*—a generic term used for a variety of measurements including weight of meat and blubber of pilot whales, area of land, and value of slaughtered sheep and geese (Bloch and Zachariassen 1989). Forty rods exist in the Faroe Islands—two are in the historical museum in Tórshavn and the rest are distributed throughout the whaling districts. There seems to be no contradiction in the fact that these rods simultaneously fulfill their utilitarian purpose of measuring whales, and are enshrined as material relics of Faroese culture.

In 1989, Faroese scientists Dorete Bloch and Martin Zachariassen conducted an examination of all forty rods. Some of their findings are as follows. The rods are marked logarithmically in Roman numerals, usually from I to XX (Figure 6.17), though there are examples both of shorter and longer rods. Six rods are marked at the half-skinn as well. The non-linear spacing takes into account the fact that there is more body mass toward a pilot whale's head than toward its tail. Although the rods are said to have all been made using the original rod as a standard, there does exist significant variation in the marked units from rod to rod. However, the effect of these variations is mollified by the fact that the final designation of skinn-value for each whale is based not solely upon the measurements taken by the rod but also upon such qualitative factors as size of the pod from which the whale was taken; time of year (winter whales have thicker layers of blubber than those taken in summer); and physical condition of the whale, including such factors as stoutness, pregnancy, lactation, and wounds.

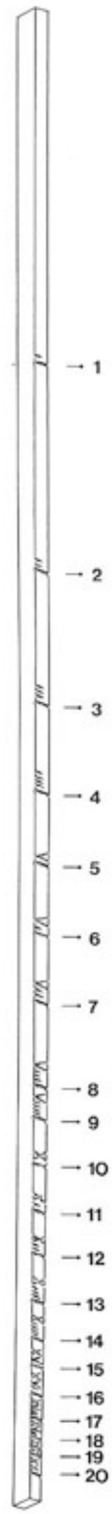


Figure 6.17: An example of a logarithmically graduated assessing rod. Source: Bloch and Zachariassen 1989, 42.

Process

Grindadráp are opportunistic events that can occur at any time, during any part of the year, and are in no way predictable. However, in an analysis of over 400 years of whaling records, a clear increase in the incidence of grindadráp is seen from June to October, peaking in August (Figure 6.18). Over sixty-four percent of all recorded grindadráp have occurred in July, August, or September. One reason for this increase in grindadráp occurrence is simply that the weather is more agreeable for marine activity in Faroese waters during the summer and early autumn than at other times of the year. The presence of more people on the water increases the chances of sighting a pod of whales.

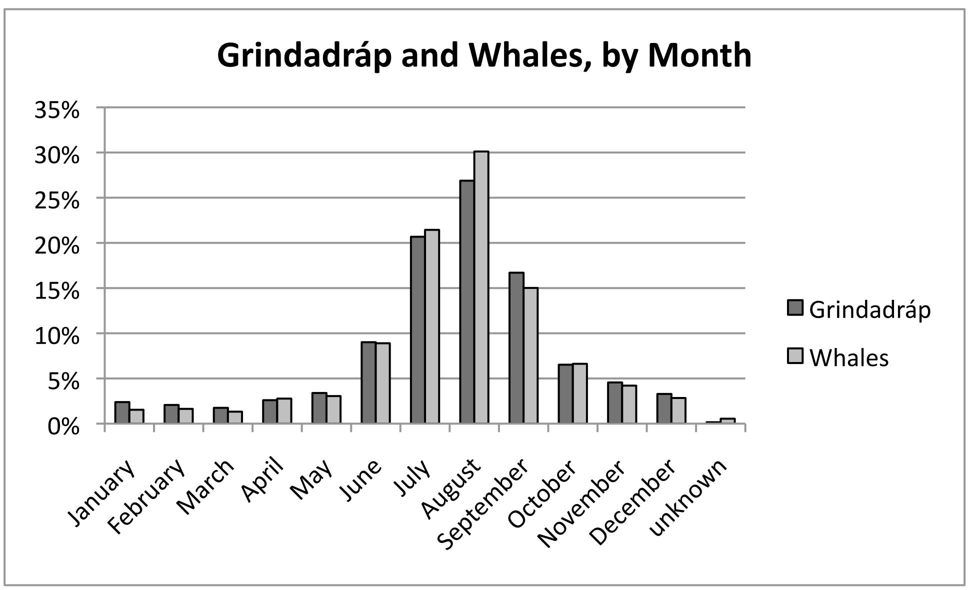


Figure 6.18: Percentage of total grindadráp and percentage of total whales by month for the period 1587-2009. n(grindadráp)=1,886; n(whales)=258,067. Data source: National Whaling Statistics of the Faroe Islands, Føroya Náttúrugripasavn.

When the sighting occurs, a series of events is initiated that, one hopes, will conclude with a hundred or more pilot whales being divided for food communally on a nearby beach. The possibility of a grindadráp takes priority over any other activity. Anecdotes abound in the

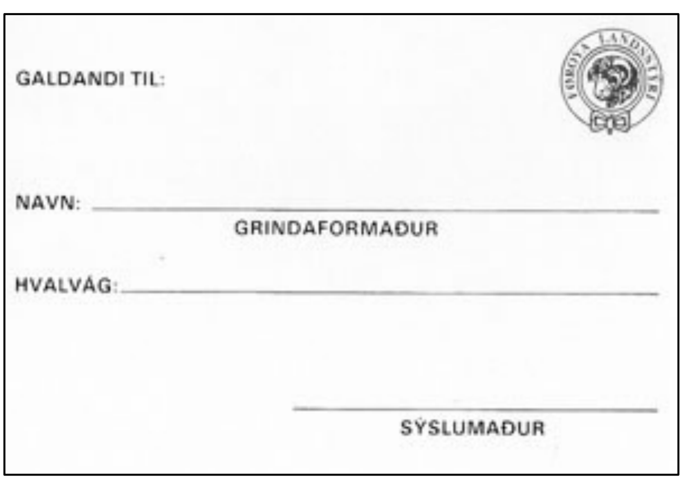
Faroe Islands of churches being emptied mid-sermon, barbers and their clients running—one apronеd and the other half-shaven—from the shop to the whaling bay, and even of a surgeon leaving his patient on the table when word of the impending grindadráp arrived. (A more extreme version of the latter tale has the patient rising from the operating table and joining the doctor at the beach! [Millman 1990]) All of this excitement and haste is attributed to one word, *grindaboð*, "the most exciting word in the Faroese language" (Wylie 1981, 98). *Grindaboð* (GRIN-da-boa) literally means "pilot whale message." It is the news that a pod of whales has been sighted and a grindadráp will be attempted. Grindaboð represents the system by which the message is delivered as well as the message itself. Today the message is usually delivered by mobile telephone, though in the past elaborate systems of runners, rowers, shouters, and smoke signals were used (Joensen 2009).

Whales are most often sighted from sea. When a sailor or fisherman sees a pod of whales he telephones or radios the district *sýslumaður* (SHOOSH-la-maw-er), or sheriff (Figure 6.19). Upon hearing of the sighting, the sýslumaður contacts one or more of the district *grindaformenn*—whaling foremen—to discuss whether or not to pursue the whales, and if so, into which bay they should be driven. In an interview, one sýslumaður called the district grindaformenn his "prolonged arm" in the regulation of the grindadráp. Faroese law states that each whaling bay must have four grindaformenn and two deputies (Petersen and Mortensen 1998). Given their whaling experience and nautical knowledge, grindaformenn are the most qualified to decide how to best handle a particular pod of whales within particular oceanic, weather, and economic conditions. Any of a number of varied conditions could lead to a grindadráp being aborted. Uncooperative ocean currents, difficult whales, darkness, or the abundance of whale meat in storage throughout the district have all been reasons that pods of whales were driven back to sea.

Figure 6.19: Andras Marr Poulsen, sýslumaður of the district that includes Tórshavn.

After the sýslumaður, in consultation with the grindaformenn, has decided that the grindadráp will be attempted and which bay will be the target of the drive, the grindaboð is quickly sent out and boats of all kinds and sizes begin to gather on the seaward side of the pod of whales (Figure 6.20). Several of the district grindaformenn might participate in any given grindadráp but it is the first grindaformann on the scene who hoists the merkið on his mast and assumes the leadership role at sea in the whaling effort. The sýslumaður normally stays on shore to enforce the laws about proper whaling. Though the authority of the sýslumaður and the grindaformenn is not equal—in an interview, one sýslumaður referred to "my foremen," and the latter must carry identification cards signed by the former (Figure 6.21)—the two support one another as the regulators of the grindadráp: the sýslumaður on shore and the grindaformenn at sea. Faroese whaling regulations are very explicit on the authority of the sýslumaður and the grindaformann. The charge is repeated several times throughout the text that, “All boats and people on land must follow the instructions of the Sheriff and/or the whaling foreman” (Petersen and Mortensen 1998, 272-280).

Figure 6.20: The pod of pilot whales has been sighted and boats begin to form a semicircle on its seaward side. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.



GALDANDI TIL:

NAVN: ______________________

GRINDAFORMAÐUR

HVALVÁG: ______________________

____

SÝSLUMAÐUR

Figure 6.21: A grindaformann's identification card (blank) from the Faroe Islands. Spaces to be filled in are for the foreman’s name, his home whaling bay, and the signature of the sýslumaður.

As the boats arrive on the scene, the grindaformann instructs the other captains (each called a *báturformann*, or "boat foreman" [Joensen 2009, 100]) by marine radio, mobile telephone, or simply by shouting from boat to boat how to best steer the pod of whales into the chosen bay. Boat crews throw stones into the water behind the whales to direct their course. The two types of stones used are *leysakast*, or loose stones, and *fastakast*, stones tied to a rope so they can be retrieved and thrown again. According to Bloch (2007, 26), these stones create "a wall of bubbles which… the whales perceive as a solid barrier which they must avoid." It has been my observation that passengers riding forward in the boats also create a great deal of noise through shouting, slapping the hull with their bare hands, and banging on the rails with metal tools (Figure 6.22). All of this is meant to keep the whales moving toward the beach.

Figure 6.22: A grindadráp participant rides in the bow of a boat, creating noise to drive the pod of whales forward. Photograph © Terji S. Johansen, used by permission.

While the boats drive the pod slowly into the narrowing fjord, a crowd begins to gather at the selected beach in response to the grindaboð (Figure 6.23). The mood in this crowd is one of hopeful anticipation. Pods of whales have been lost when they became disoriented in the shallow water and the success of the grindadráp is by no means certain until the whales have actually beached. The whaling regulations give several conditions under which the pod of whales—in whole or in part—must be driven back to sea. The situation that the boat captains try hardest to avoid is one in which "several unsuccessful attempts are made to drive the whales into the designated whale bay, and the whales can neither be forced ashore nor hooked" (Petersen and Mortensen 1998, 274-275).

Figure 6.23: The crowd gathers on the beach to meet the whales as they are driven to shore. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.

In whaling bays with relatively small, uninterrupted beaches like Torshavn, everyone can gather in one place and wait for the whales to arrive, but on large beaches, or in whaling bays like Klaksvík that because of waterfront development have had their beaches fragmented, members of the shore party vie to predict the exact landing place of the first whales. On these beaches, hook-and-rope teams of two men each are seen running along the water's edge or among boathouses every time the pod of whales changes its intended course.

When the whales begin to strand in the shallow water, the grindaformann signals the men on shore to enter the water and begin the kill. With vocal expressions of excitement, joy, and pride, men rush into the frigid North Atlantic, sometimes wearing wetsuits but often in their work clothes, to meet the pod of stranding whales (Figure 6.24).

Figure 6.24: At the grindaformann's signal, men rush into the sea to hook the stranding whales. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.

When a man with a sóknarongul reaches a whale, he raises the hook above his head and brings it down forcefully, driving it into the flesh of the whale. I have never witnessed the use of a blástrarongul but I expect that it does not involve this same amount of force to place it in the blowhole. When a whale is secured to a hook, men gather to take up the loose end of the rope and haul it ashore (Figure 6.25 and Figure 6.26). Once ashore, or close enough for the whale to strand, the rope team will hold the living whale secure with tension on the rope until another man can perform the task of the killing. After the whale is dead it will be hauled completely to shore.

Figure 6.25: Whales are hooked and dragged toward the shore. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.

Figure 6.26: Men haul hooked whales to shore as the water—and the faces—are stained with blood. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.

To kill a whale, a man must make a series of cuts with his grindaknívur. Placing the blade one handbreadth behind the blowhole, the whaler cuts through skin, blubber, and muscle to expose—and sever—the major blood supply to the brain and the spinal cord (Figure 6.27). According to the whaling regulations, “deep cuts must be made in both sides and the veins of the neck must be cut. Then the spinal cord must be severed” (Petersen and Mortensen 1998, 274). These instructions are taken directly from scientific findings about the anatomy of the pilot whale, which show the prescribed method to be the quickest way to paralyze, desensitize, and exsanguinate the whale (Olsen 1999; Bloch 2007; for a critique of this method see WDCS and HSUS 2003). Other methods have been proposed and tried, but the traditional severing of the spinal cord and blood vessels has proven to be the most effective (Olsen 1999). After each whale is killed it is left in the shallow water and the men move on to another whale.

Figure 6.27: A man kills a whale with a grindaknívur by severing its blood vessels and breaking its spinal cord. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.

As more whales are killed, the rope teams haul them into orderly rows at the shoreline. Here they lie in the increasingly bloody water until the entire pod has been killed. The overall scene is one of constant motion: gradually reddening waves wash over the glossy black skin of whale carcasses that lie in repose at the water's edge. As the work nears completion, some whalers become observers, taking in the sight of the grindadráp as it winds to a close (Figure 6.28). When the entire pod has been killed, most of the participants leave the scene to return home to dry off, warm up, and change clothes.

Figure 6.28: The scene of a grindadráp nearing completion. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.

To the observer, the entire grindadráp seems to be over very quickly. In fact, of the four cetacean killings I have witnessed in the Faroe Islands (two of pilot whales, two of dolphins), I only was able to arrive on the scene of one before the killing had commenced. Twenty years ago, a Faroese research team examined a variety of statistical measures kept at forty-three grindadráp during a two-year period and found that the average time taken to kill the entire pod was 28.4 minutes (Bloch et al. 1990a).

Distribution

At the end of the grindadráp, we are left with dozens or hundreds of whales lying dead in the shallow water or on the beach (Figure 6.29) and a comparable number of men (and increasingly in recent years, women) who feel the pride, exhaustion, and nationalism that a successful grindadráp engenders. There are also the residents of the district villages who have begun to arrive at the whaling bay with knives and large plastic tubs, eager to take home their share of meat and blubber.

Figure 6.29: Dead pilot whales lie in the shallow water. Photograph © Joen Remmer and Katja Dyhr Remmer, used by permission.

Faroese law prescribes a complex system of division by which grindadráp participants are rewarded for their work, but the meat and blubber are distributed equally and fairly to all who desire it. Fairness and equality are the ideals of the system but often everyone is not satisfied with their lot. Grindadráp are social events and times of celebration and as such, there is often a spirit of conviviality in the aftermath. Those present are often consuming alcohol (*after* the killing, not *during*, as some critics have suggested) and socializing with residents of neighboring villages as the whales are assessed and the divisions are calculated. Despite the socializing that it allows, the primary purpose for the grindadráp is food production and everyone expects to depart with large quantities of free meat and blubber after the event is finished.

As the Faroese population grows and as communication networks and infrastructure improve, it becomes possible for large crowds of non-participants to assemble at the site of the grindadráp after receiving the grindaboð. Regulations for the division of the whales vary by district and in some districts there is much room for subjectivity in how the meat and blubber will be divided. Final authority in all division-related decisions rests with the sýslumaður. Andras Poulsen, sýslumaður of the largest and most populous district, told me that the division of pilot whale meat and blubber is the only situation in which he carries his service pistol—as a deterrent to any violence that may erupt, fueled by alcohol, greed, and excitement in the aftermath of a grindadráp.

The sýslumaður's first step in the making of a fair division is to have all of the whales or dolphins lined up and measured in the place where they will be processed. Adjacent to some whaling bays, like Tórshavn, there is a large paved area that serves as an ad hoc processing facility. In others, such as Øravik, the catch is processed directly on the beach where it was driven. In either case, the first task is to haul all of the whales, either by hand (Figure 6.30) or by machine (Figure 6.31), into orderly rows in the designated assessment area.

Figure 6.30: The author assists in hauling dolphins ashore by hand after a kill. Photograph © William C. Rowe, used by permission.

Figure 6.31: A dolphin is lifted by crane from the shallows to the processing area.

Once the whales are lined up in the processing area, certain men appointed by the sýslumaður set to the task of measuring them (Figure 6.32; see also Appendix E). These *metingarmenn*, or measurement men, chosen for their trustworthiness and impartiality, fill an ancient role in Faroese society. Joensen (2009, 125) cites the earliest reference to these men and their job from a 1710 report, which states that after the whales are killed, "then they are all assessed, small and large, by men who have been appointed by the sheriff, and each fish [is marked with] its number and value."

Figure 6.32: Metingarmenn, appointed by the sýslumaður, measure the dolphins.

The marking of the whales, with both “number and value” continues today. Whales are first marked consecutively with an Arabic numeral carved into their heads, identifying each as “whale number 1, whale number 2” etc. (Figure 6.33).

Figure 6.33: Whales are marked on the head with a consecutive Arabic numeral for identification...

Then after each whale is measured with the logarithmic rod, its value in skinn is marked on one pectoral fin, using Roman numerals (Figure 6.34).

Figure 6.34: ...and on the fin with a Roman numeral showing the whale's measurement, in skinn.

The tool used to mark the whales is called a *grindajarn* or “pilot whale iron.” It is a handheld cutting device with a round hole at one end through which the outermost layer of black skin is removed, leaving the white blubber to show through. The metingarmenn measure the whales from the eye to the anus using the logarithmic rod (Figure 6.35). The measuring regulations in two villages—Hvalba on Suðuroy and Hvalvík on Streymoy—differ from this norm in that the measurement is made from the cut in the neck to the anus. Another exception is in cases of dolphin kills, where a simple measuring tape is often used instead. At the time of the measuring, the metingarmenn or other helpers of the sýslumaður’s choosing open the body cavities of the whales and remove the entrails to allow the carcasses to cool and to prevent the meat from spoiling (Figure 6.36).

Figure 6.35: The metingarmenn measure a pilot whale killed at Gøta. Photograph © Mark Kožuch, used by permission.

Figure 6.36: Pilot whales lie on the quay at Gøta, their abdomens open and entrails partially removed to allow quicker cooling to prevent spoilage. Photograph © Mark Kožuch, used by permission.

When the metingarmenn have finished their measurements, they present the tally to the sýslumaður. He then retreats to his ad hoc office—normally a simple workspace with a desk in a nearby building or house—to calculate the divisions. In the past, *sýslumaðurin* (the plural form) performed all the arithmetic by hand but today most use spreadsheet software such as Microsoft Excel. The purpose of the calculations is to insure that the meat and blubber are divided fairly among all the residents of the district in which the grindadráp occurred, and that any special shares are properly assigned. Special shares are given to the person who first sighted the whales, the grindaformenn, the metingarmenn, local schools and nursing homes, and others whom the sýslumaður deems deserving. The sýslumaður also completes a form detailing various data about the grindadráp for the Ministry of Fisheries (Appendix E), where the information is added to the ever-growing database on Faroese whaling.

While the sýslumaður is working on the division, nearly everyone else who was involved in the grindadráp leaves the scene. Most who were in the water go home, or to a friend's house, to bathe and change clothes. There is usually no work to be done and nothing interesting to see after the whales have been killed and before the shares are announced. This mass departure has led to accusations of abandonment by anti-whaling groups who present the grindadráp as sport, with no practical purpose for the whales after the killing is complete (Olafsson 1990; Sanderson 1992). One would give up the notion of abandonment quickly if one were to return at the appointed time to see the crowds eagerly listening to the sýslumaður as he reads the shares (Figure 6.37).

Figure 6.37: A crowd gathers to hear the announcement of the sýslumaður (center, obscured) regarding the shares that will be divided from a dolphin drive in Øravik.

Despite the excitement, the crowd is not a disorganized mob. The distribution of meat and blubber from the grindadráp is a highly organized, structured event. Ideally, anyone present at the grindadráp is eligible to receive a share of meat and blubber. In practice however, the sýslumaður often decides to limit the shares to only residents of the village where the grindadráp took place, or to the actual participants in the grindadráp and their families. These limitations depend solely upon the sýslumaður's judgment and the number of whales available. The most traditional, and most egalitarian method of distribution is called the *partahvalur* (shared whale) or *heimapartur* (home share). With this method, every home in the district receives an equal share of whale meat and blubber. These two share systems are merely the most common. In reality, the sýslumaður has a wide margin of flexibility in the way that he decides to divide the proceeds from a grindadráp. Sometimes participants who have come from another village or district are left out of the distribution, if the sýslumaður decides that the proceeds will go only to the residents of the village or district where the grindadráp occurred. Though this situation is rare, it can foment anger and feelings of resentment among the grindadráp participants who feel that it is unfair for them to leave empty-handed after contributing toward the success of the grindadráp.

The Faroe Islands are divided into nine *grindadistrikter*, or pilot whaling districts. The inhabitants of each district are organized into groups of no more than fifty individuals. In most districts, these groups are called *bátar*—boats. This system of organization was based on the assumption that the crew of an eight-man boat, together with their families, comprised twenty-five people (Joensen 2009). A *bátur* (the singular) then represented two actual boat crews and their families. Today, actual boats can be crewed by any number of people but the bátur as a unit of human organization remains set at fifty people. When the whales are divided, they are assigned to individual bátar; further division among individuals is left up to the group leadership to decide.

After the sýslumaður has finished his calculations—often several hours after the grindadráp is complete—he calls the participants and all others who will receive a share of the meat and blubber for the traditional oral recitation of the amounts to be distributed. During this speech, the sýslumaður gives a representative of each bátur a slip of paper called a *grindaseðil*, which lists the numbered whales or dolphins that one particular group of people will receive (Figure 6.38). Some whales will be set aside to provide food for schools and homes for the aged or the poor (Joensen 1990). Others may be sold to people in other districts, the funds then used to cover various expenses involved in the grindadráp. In the past, one or more whales were sold to cover losses incurred by the participants in the grindadráp. Faroese law specifies the following damages that will be covered: damage to boats, broken or lost equipment, broken or lost false teeth or eyeglasses, and personal injury (Petersen and Mortensen 1998). Today the municipal governments cover these losses through taxes (Joensen 1990). Throughout the history of the grindadráp, sales of whales have been the exception to the rule of a noncommercial method of food production.

At the time of processing, men, women, and children descend to the beach or the otherwise designated processing area to claim their shares. Representatives from each bátur who will share the meat and blubber from an individual whale first must locate that whale by the consecutive number carved into its head. Once the whale is located, the bátur members quickly cut the blubber into sheets and peel it back from the meat (Figure 6.39). Next they carve off sections of meat that can be easily transported and cut smaller at home (Figure 6.40).

GRINDASEÐIL

Grindadrápið í

tann 19

Bátur:

Bygd:

Eigur			Skift				Viðm.
Til Partar	Gl.	Sk.	Hval nr.	Part í hvali nr.	Gl.	Sk.	

estra 5555

Figure 6.38: A grindaseðil, or share ticket.

Figure 6.39: Men strip blubber from a dolphin on Suðuroy.

Figure 6.40: Men cut large portions of meat from a dolphin.

While the processing is usually left to those with more experience, children can often be seen helping, observing, and in some cases, practicing the skills needed to get meat and blubber from a whale or dolphin (Figure 6.41).

Figure 6.41: Children are usually present, often as observers and sometimes as participants.

There are no formal lessons in the Faroe Islands through which people can learn the skills of the grindadráp. Children, or even adults who are interested are simply expected to make themselves available and to learn from the experts. When veterinarians and biologists have introduced a new implement such as the mønustingari or the blástrarongul, they have held training sessions with the grindaformenn, who in turn, have trained those interested in their own districts.

As those working on the whales collect meat and blubber, they build stacks on the ground: first blubber, skin side down, and then meat (Figure 6.42). This ordering is simply practical as it keeps the edible parts separate from the dirt and keeps the food more sanitary.

Figure 6.42: Blubber is laid skin-side down and meat is stacked on top.

Finally, the whales have been stripped of their meat and blubber and the leftover parts—heads, spines, fins, and organs—are ready to be discarded. Faroese law states that these parts must be carried out to sea within 24 hours of the grindaseðil distribution (Petersen and Mortensen 1998). The people who perform this job and other special tasks usually receive an extra share as part of the sýslumaður's calculations. As the members of each boat finish processing their whales, the crowd at the beach or the processing area becomes thinner. People carry home meat and blubber in plastic buckets or pickup trucks to be processed at home.

Nearly all of the blubber is salted and left to dry for three months or more (Bloch 2007). Some of the meat is frozen or cooked fresh and the rest is cut into long, thick strips to be dried in the wind. The Faroese dry their whale meat at home, or at the home of a neighbor, in a structure called a *hjallur* (CHUT-ler). These little rooms, sometimes separate from the house and sometimes attached, are built with openings of approximately 1 centimeter between the slats that make up the walls so that wind can blow through and dry the meat (Figure 6.43). The hjallur is not used only for whale meat. Fish and sheep can be dried in them as well and they can also be used for storage (Joensen 1982).

Figure 6.43: A hjallur (right) behind a house (left) in Vestmanna.

Consumption

When the whale meat is sufficiently dried, usually after three to five weeks, it is ready to be eaten, cured but uncooked. The most common, and most traditional, way to prepare a meal of whale meat in the Faroes is to slice the dried meat and salted blubber thin and to serve both together with boiled potatoes. This dish is called *grind og spík*—literally pilot whale (meat) and blubber. Another popular meal is a Faroese smorgasbord—a platter containing several traditional Faroese foods such as grind og spík along with dried fish, sheep, and other local delicacies (Figure 6.44). Together or separately, pilot whale meat and blubber are widely popular throughout the Faroe Islands. The majority of respondents to my survey affirmed eating both.

Figure 6.44: *Grind og spík*—dried pilot whale meat (lower right) and sliced blubber (upper and center right), served with dried fish (center) and smoked fish (left).

Conflict

Anti-Whaling Activism

Though the grindadráp has been well documented in travelers' accounts and cultural studies of the Faroe Islands for centuries (Joensen 1976; Wylie 1981; Sanderson 1992), it remained obscure to the public outside of Scandinavia until the mid-1980s. Sanderson (1990; 1992) described the quick shift that the grindadráp made from a relatively unknown method of food procurement and source of national distinctiveness and pride, to an alleged crime against nature and target of international protest. The following will be a brief summary of the anti-whaling movement as it has affected the grindadráp.

In 1981 Greenpeace representatives visited the Faroes to document the (now ceased) commercial whaling operation. Their visit coincided with three large grindadráp. The representatives' final report to Greenpeace (Glover 1981) focused primarily and critically upon the grindadráp rather than upon the commercial whaling operation that was the original focus of the expedition (Sanderson 1990).

The following year, the Scottish branch of the Sea Shepherd Conservation Society became aware of the grindadráp and alerted the organization's director, Paul Watson. Sea Shepherd sent a small group with inflatable boats to observe the grindadráp in 1983 (Paul Watson, personal communication).

In 1984 a Danish television company produced a documentary film about the grindadráp that increased its visibility within Europe (Sanderson 1990).

The commencement of broad public awareness of—and activism against—the grindadráp dates to 1985. That year, Sea Shepherd sent a larger crew aboard the *Sea Shepherd II* to attempt to interfere with the grindadráp (Paul Watson, personal communication). Also, at the annual meeting of the IWC in Bournemouth, England, the topic of the grindadráp was brought up and the IWC maintained its stance that it would not regulate small cetacean operations. Environmental organizations published campaign letters and journalistic pieces critical of the grindadráp. Also in 1985, the Humane Society of the United States published a short article calling "for the curtailment of the Faroe hunt" (Plowden 1985, 13). As a result of these campaigns, letters and preprinted postcards began to arrive at the Office of the Prime Minister in Tórshavn (Sanderson 1990).

In 1986 Paul Watson returned to the Faroe Islands with a BBC film crew, which produced a documentary film about the grindadráp (Paul Watson, personal communication; *Black Harvest* 1987). Also this year, the Faroese government changed the regulations regarding the grindadráp dramatically with the goal of ensuring a more humane death for the whales (Sanderson 1992; Olsen 1999). This action was in direct response to concerns of cruelty and inhumane killing methods that the anti-whaling organizations raised (Guttesen 1996c; Joensen 2009).

In the early 1990s, two organizations formed to advocate for the grindadráp: regionally the High North Alliance in 1991, based in Reine, Norway, and locally in the Faroes, the *Grindamannafelagið* (GRIN-da-ma-na-fell-eye-ya), or Pilot Whalers' Society, in 1993. According to the former organization's website, the High North Alliance exists to "protect the rights of whalers, sealers and fishermen to harvest renewable resources in accordance with the principle of sustainable management" (High North Alliance 2008). The Grindamannafelagið was formed to establish regulations for more humane killing methods in the grindadráp and to educate grindadráp participants in proper whaling techniques. Also in 1993, environmental organizations first began calling for a protest of Faroese products, especially seafood, which makes up over eighty-nine percent of the country's exports (Hagstova Føroya 2010).

At its 1995 meeting in Dublin, Ireland, the IWC commended the improvements in killing methods that were instituted on the recommendation of the Grindamannafelagið and encouraged the Faroese government,

> "to continue its work… monitoring the performance in the drive hunt and introducing training programmes in killing methods with a view to reducing times to death…" (IWC 1995)

In 2000 Paul Watson returned to the Faroes aboard the *Ocean Warrior* with more international press coverage than on the previous visits and patrolled the coastline with the goal of driving pods of whales away from the islands and thus, preventing grindadráp (Paul Watson, personal communication).

During the twenty-first century, some environmental organizations have ceased to oppose Faroese whaling. The majority of scientific organizations involved in studies of whale populations in the North Atlantic have endorsed the sustainability of the grindadráp. The International Council for the Exploration of the Sea, the North Atlantic Marine Mammal Commission, and the International Whaling Commission have concluded that, based upon population estimates and hunting pressure, the grindadráp will not deplete the whale population (Culik 2004).

The environmental organizations Greenpeace, Sea Shepherd, and the Whaleman Foundation maintain their positions against Faroese whaling. However these organizations concentrate most of their efforts on opposing other whaling operations, especially by the Japanese, and none has an active campaign against the Faroe Islands. The World Wildlife Fund-Denmark (WWF) has prepared a standard response to inquiries that refers to the sustainability of the grindadráp, its long history in Faroese culture, and the efforts by Faroese authorities to reduce the suffering of individual whales that are killed. The statement concludes by noting that "WWF is a conservation organization and the question of cruelty of the pilot whale hunt is not a conservation issue" (Christina Sabinsky, WWF spokesperson, personal communication). The Faroese government continues to respond individually to all personally written protest letters (Kate Sanderson, personal communication). Letters are occasionally directed toward the Danish government, which has prepared a series of standard response letters (Appendix F).

In the recent past, and especially during the late 1980s and early 1990s, it seemed to some Faroese that the international protests and threatened boycott might require a cessation of the grindadráp. In August 2005, Ólavur Sjurðarberg, president of Grindamannafelagið, remarked that the protest was the biggest threat to the continuance of the grindadráp (personal communication). As recently as March 2008, Rolf Guttesen, a Faroese geographer at the University of Copenhagen echoed this opinion (personal communication).

In May 2009, the World Society for the Protection of Animals (WSPA) published a press release listing twenty-two international animal welfare organizations that continue to oppose the grindadráp. However, the proposed boycotts have not had any noticeable impact on the Faroese or Danish economies (Árni Olafsson, personal communication). It seems then, that the protest has not ended—or even lessened—the occurrence of the grindadráp in the Faroe Islands. Rather, its effect was to call attention to some areas in which the grindadráp could be improved and to instigate the necessary improvements.

Environmental Pollutants

In recent decades, another form of conflict has arisen regarding the grindadráp. Since 1977, scientists have been studying the problem of methyl-mercury (MeHg) and other environmental pollutants in the blubber and muscle tissue of pilot whales (Julshamn et al. 1987; Weihe and Joensen 2008). According to the National Research Council of the United States (2000, 147), "the central nervous system is the organ system most sensitive to MeHg," but the contaminant is also known to be a cause of "carcinogenic, immunological, reproductive, renal, cardiovascular, and hematopoietic toxicity."

Beginning in 1985, a Faroese-Danish-American research team selected nearly 2,000 children to participate in the Children's Health and the Environment in the Faroes Project (CHEF 2010). As CHEF Project participants, the children's mental and physical development is monitored, along with their eating habits with regard to pilot whale meat and blubber and the levels of MeHg in their systems. Elevated levels of MeHg and other contaminants present in the tissues of pilot whales have been linked to a variety of human health problems in the Faroe Islands, including disorders of the cardiovascular (Sørensen et al. 1999; Choi et al. 2009), immune (Hellman et al. 2006; Grandjean et al. 2007), neurological (Murata et al. 2004; Debes et al. 2006; Grandjean et al. 2007), and reproductive (Grandjean et al. 2007), systems as well as Parkinson's disease (Petersen 2008; Petersen et al. 2008).

In 1998, based on the findings of the CHEF project, Dr. Pál Weihe, Chief Medical Officer of the Faroese Hospital System, published a set of dietary recommendations for pilot whale meat and blubber. In these recommendations, Weihe made it clear that no one should eat more than two meals of pilot whale meat and blubber per month, and that women of childbearing age should abstain completely (Weihe 1998). This was a difficult recommendation for the Faroese people to accept. Pilot whale meat and blubber are otherwise healthy and popular food products—good sources of protein, vitamins A and B, and fatty acids (Bloch 2007). Shortly before the CHEF project began, Faroese doctors had been recommending that children be given more blubber to eat because of its nutritional value (Weihe and Joensen 2008). The CHEF Projected continued to produce data and in 2008 Dr. Weihe, along with a colleague, Dr. Høgni Debes Joensen, prepared an update to the dietary recommendations to reflect new findings about increased concentrations of mercury and other pollutants in pilot whale meat and blubber. Their conclusion, printed starkly offset and in boldface simply reads:

> **It is recommended that pilot whale is no longer used for human consumption**.
> (Weihe and Joensen 2008, 3, emphasis in the original)

Though the recommendation to cease the consumption of pilot whale products is far from universally accepted—indeed, Dr. Weihe is often called upon to defend his conclusions in local debates and publications—the Faroese public, in general, does understand the basic principle that pilot whale meat and blubber can present certain risks, especially to certain people.

The 2008 announcement is three pages long and speaks generally to the role of the grindadráp in Faroese culture. “The pilot whale has served the Faroese well for many hundreds of years and has likely kept many Faroese alive through the centuries” (Weihe and Joensen 2008, 3). But Weihe and Joensen acknowledge that times and environmental conditions have changed. The levels of MeHg and other contaminants are beyond what can be considered tolerable in a food source. One would think that environmentalists around the world would decry the presence of environmental toxins in a place as remote and unspoiled as the Faroe Islands. However this has not proven to be the case. In 2005, Paul Watson of the Sea Shepherd Conservation Society (personal communication) stated,

> Considering that pilot whale meat is the reason that the Faeroese have the highest level of toxic mercury in their bodies of any people in the world, the intelligent thing would be to not eat whale meat. Tradition appears to outweigh common sense in the Faroes.

Other environmental organizations have followed suit, citing the presence of marine toxins as another reason why the Faroese should give up the grindadráp, but rarely decrying the presence of those toxins in the first place. A look at how MeHg came to be prevalent in the marine environment might offer an explanation why: the major contributors to the presence of anthropogenic mercury in the environment are the industrialized nations, which, unlike the Faroe Islands, burn coal for energy. Most anti-whaling activist organizations are based in industrialized nations. To argue against whaling is to implicate the Faroese as the Other. To argue against mercury pollution is to implicate the Self.

Some MeHg occurs naturally. Mercury is released from the earth's crust through slow degassing or explosively during volcanic eruptions. It is also a component of air pollution, primarily from coal-burning power plants (Morel et al. 1998). Industrialized nations often experience localized deposition of mercury in their waterways (Joensuu 1971; Morel et al. 1998). However, true to its fleet-footed namesake, the Roman messenger god (Hamilton 1969), elemental mercury becomes widely dispersed in the upper atmosphere and dispersed globally, including in otherwise "pristine" environments (Morel et al. 1998; Boening 2000).

The 2008 statement made the point that the Faroese are "without responsibility with regard to the marine pollution" (Weihe and Joensen 2008, 3). Instead, the doctors place the blame on industrialized nations, primarily in Europe and North America, for the problems that have affected the Faroese and their favorite food source. The Faroe Islands burn no coal and generate only sixty percent of their electricity from fossil fuels, primarily through diesel generators (EIA 2008; Hagstova Føroya 2009; EIA 2010; SEV 2010). The remaining forty percent is from wind and hydroelectric generators. On days when the wind is strong, or the rivers are flowing swiftly, the generators shut down and the Faroese electrical grid becomes 100 percent renewable. When an entire week goes by without turning on the generators, the accomplishment is proudly announced on the radio.

After mercury has been released from power plants and dispersed in the atmosphere, much of it eventually reaches the ocean, either through direct rainfall or runoff. Once in the ocean, the mercury, being much more dense than water, sinks to the bottom where it is methylated, that is, changed chemically from elemental mercury to methyl-mercury by sulfate-reducing bacteria in the marine sediment environment (Morel et al. 1998). Morel and colleagues go on to explain that MeHg is a more dangerous form of the pollutant to humans.

Unicellular organisms living in marine sediments absorb MeHg. The tiny animals that feed on these organisms ingest the pollutants as well. As larger and larger animals feed on the smaller, polluted organisms, the concentration of MeHg increases—a classic case of biomagnification. Because the oceans are natural sinks for mercury, high trophic-level marine animals such as sea birds and cetaceans often present high concentrations of MeHg in their tissues (Dam and Bloch 2000; Gray 2002). People who eat these animals are then claiming the top spot on the food chain and the highest level of MeHg of all.

The human health effects of MeHg have been studied since the famous incident in Minamata, Japan, beginning in the 1950s (George 2001). People who live in fishing communities often have higher than average levels of MeHg and other biomagnified environmental contaminants (Grandjean and Weihe 2008). Additionally, many northern peoples have been found to have a high rate of exposure to marine toxins as a result of food-borne contamination and traditional diets (Weiss 2008). The Faroese, a northern population that relies heavily upon the sea as a food source, are especially vulnerable.

Despite environmentalist efforts, as more developing nations industrialize, marine pollution will likely increase. As pilot whale meat and blubber become more contaminated, their risk will increasingly outweigh their benefits. This is not to say that the Faroese will give up their "national dish" easily. As has been shown in a variety of contexts, food is a powerful reminder of a culture's distinctiveness and national identity (e.g. Wilk 1999, Cusack 2000, Raento 2006). Just as in other northern maritime communities (e.g. O'Neil et al. 1997), the cultural connection to traditional local food and the opposition to contaminant-based diet restrictions in the Faroe Islands are strong. As part of the current study, surveys of Faroese youth indicate a strong resistance to the idea of totally abandoning pilot whaling as a method of food production, despite the warnings of health risks.

One possible outcome that could balance the cultural connection to pilot whale meat and blubber with the health risks of its consumption would be to retain the food as something of a ceremonial meal, eaten only (or primarily) at special occasions such as weddings, birthdays, and the Faroese national holiday, *Ólavsøka* (OH-lav-soo-kah). Results from surveys indicate that this shift from pilot whale meat and blubber as an ordinary meal to a ceremonial meal is occurring to some degree, especially among the young urban population in Tórshavn.

The Faroese cling tightly to their culture but they also take seriously the advice of their public health professionals. The third cohort of children in the CHEF Project, born between 1998 and 2000 showed lower concentrations of MeHg than the first cohort, born in 1986 and 1987. The directors of the project attribute this decrease to the obedience of the children's mothers to the dietary recommendations (Grandjean and Weihe 2008). Dr. Weihe (personal communication) believes that the results of his study and the revised dietary recommendations will eventually lead to a cessation of the grindadráp, though he does not advocate legislation outlawing the practice:

> The reduction in the consumption of whale meat and blubber should be based on an understanding for the toxicological risks. Not a decision from the politicians. I think what will happen is that the women first will stop eating it and… the men will follow. However, my best prediction is that sporadic killings will take place over the next decade and [then] it will be a forgotten culture.

Weihe, himself a grindadráp participant, is not enthusiastic about his role in the possible decline of this tradition. "It is with great sadness that this recommendation is provided," begins the concluding paragraph of the 2008 dietary recommendation (Weihe and Joensen 2008, 3).

It is interesting to note that amid the threats of protest and pollution, overhunting has not been an issue regarding the continuance of the grindadráp. Faroese and international researchers have deemed the eastern North Atlantic population of pilot whales plentiful and the hunting pressure does not seem to be too great (Buckland et al. 1993; NAMMCO 1997 [both cited in Culik 2004]). Some researchers (e.g. Jefferson et al. 1993) have called for more population studies to be conducted, stating that not enough is known about pilot whale populations worldwide, although the eastern North Atlantic population of long-finned pilot whales is better understood than other regional populations. There are no quotas placed on the grindadráp, rather, longstanding Faroese cultural traditions have been codified into laws that serve to protect the population of pilot whales as a resource.

Conservation

Within the Faroese legal code, the Executive Order on Pilot Whaling and the Executive Order on Whale Bays set all the rules for when, where, and how the grindadráp may be conducted in the Faroe Islands. The former states that "the Faroese Government is the highest authority in all matters pertaining to pilot whaling" (Petersen and Mortensen 1998, 272). Throughout much of the grindadráp's early history the hunt was regulated locally by those who participated and those upon whose land the whales were landed. In 1779, the Faroese scholar Svabo called for the establishment of a kind of hierarchy by which "one or two of the most responsible men from each whaling bay," would each become the absolute authority regarding all aspects of the hunt and subsequent division of the meat and blubber within his district (Svabo 1779, 51 [cited in Joensen 2009, 66]). The Løgting, or Faroese Parliament, first codified pilot whaling regulations in the Faroe Islands in 1832—including the establishment of grindaformenn, the answer to Svabo's call.

The Executive Order on Pilot Whaling regulates the hierarchical order of control of the grindadráp, the equipment that can/cannot be used, the sending of the grindaboð, the killing process itself (including provisions for calling off the process), the assessment and division, the districts by which the meat and blubber are to be divided, and the penalties for violating these rules. The Executive Order on Whale Bays defines which bays may be used for pilot whaling, implicitly forbidding the activity anywhere else (Faroe Islands 2001 [cited in Joensen 2009]).

Conservation and concern for humane killing methods are built into the Faroese pilot whaling regulations. The Executive Order on Pilot Whaling forbids the use of unauthorized whaling equipment such as the spear and the harpoon, which were used in the past but found to be inefficient tools that induced unnecessary suffering in the whales. The regulations dictate exactly how a whale is to be killed ("deep cuts must be made in both sides and the veins of the neck must be cut… the spinal cord must be severed" [Petersen and Mortensen 1998, 274]) based upon recommendations from biologists and veterinarians—both Faroese and foreign (Bloch et al. 1990a; Olafsson 1990; Olsen 1999).

<u>Avoiding Wastage</u>

On October 6, 1940, 1,200 whales were driven ashore in a single grindadráp in Sandur. This large pod was more than could be handled by those present and many whales went to waste—spoiled before they could be processed for meat and blubber. Many Faroese still speak of the shame of this event and the regulations that are now in place to avoid its repetition.

The Executive Order on Pilot Whaling gives the Faroese government the right to institute "an emergency ban on pilot whaling" in one or more district (Petersen and Mortensen 1998, 272). Additionally, the sýslumaður may call off a grindadráp in progress if it is not going well or proves to be unnecessary. If a pod of whales is too large to be driven into a chosen bay, or if the homes in the district are well stocked with whale meat and blubber, the sýslumaður can either call of the grindadráp entirely (Bloch et al. 1990a), or negotiate a deal to give the meat and blubber to the inhabitants of another district in exchange for the payment of "municipal expenses" such as payments for injuries and loss or damage of property (Bloch 2007, 45). The Faroese refer to pilot whales as a "gift from God" (Weihe and Joensen 2008). To waste such a gift then would be sin, and the Faroese, through law and tradition, seek to avoid any wastage of this important resource.

<u>Limiting of Bays</u>

According to the Faroese economist Árni Olafsson (1990, 130), "the most fundamental factor behind Faroese whale and whaling policy is geography." Olafsson was speaking primarily to the geographical isolation of the Faroe Islands in the North Atlantic Ocean and the reliance upon marine natural resources that this location has engendered. However, the connection between whaling and geography goes much further. *Hvalvágir*, whale bays, are chosen for their gentle slope, sandy bottom, lack of large rocks or mud, and absence of the marbakki—a steep shelf that reflects the whales' echolocation sounds, alerting them to the approaching land and often causing the pod to turn back or disperse (Bloch and Joensen 2001; Joensen 2009).

The Faroese government maintains a list of approved hvalvágir where grindadráp are allowed to occur (Faroe Islands 2001 [translated in Joensen 2009]). The government can remove bays from this list if changes to their physical structure occur. These changes can be either natural (e.g. silt from a river filling in a bay) or anthropogenic (e.g. the construction of harbor facilities). Bays can also be added to the list if they are shown indeed to be suitable, or if they are made to be suitable through engineering projects that reshape the beach and the underwater topography. Today, the list consists of twenty-two approved hvalvágir (Figure 6.45). One of these bays, Gøta, has two separate whaling beaches, bringing the total number of beaches upon which whales can be legally driven in the Faroes to twenty-three.

Landscape-changing projects are rare—only larger municipalities can afford them—and usually involve only the pumping of sand onshore or the smoothing out of underwater features. The largest, costliest, and greatest alteration to the landscape in the name of the grindadráp occurred in Vestmanna in 1992. Whales were formerly driven onto a natural, albeit rocky, beach at the back of the fjord. As the town grew, this area was developed into harbor and fish-processing facilities. Rather than give up their status as a whale bay, the town of Vestmanna funded the creation of a wholly artificial beach on the seaward side of a rocky breakwater (Figure 6.46). It has occasionally required reloading with sand pumped from the sea floor, but the new beach has been the successful landing place for 8 whale or dolphin drives since its creation.

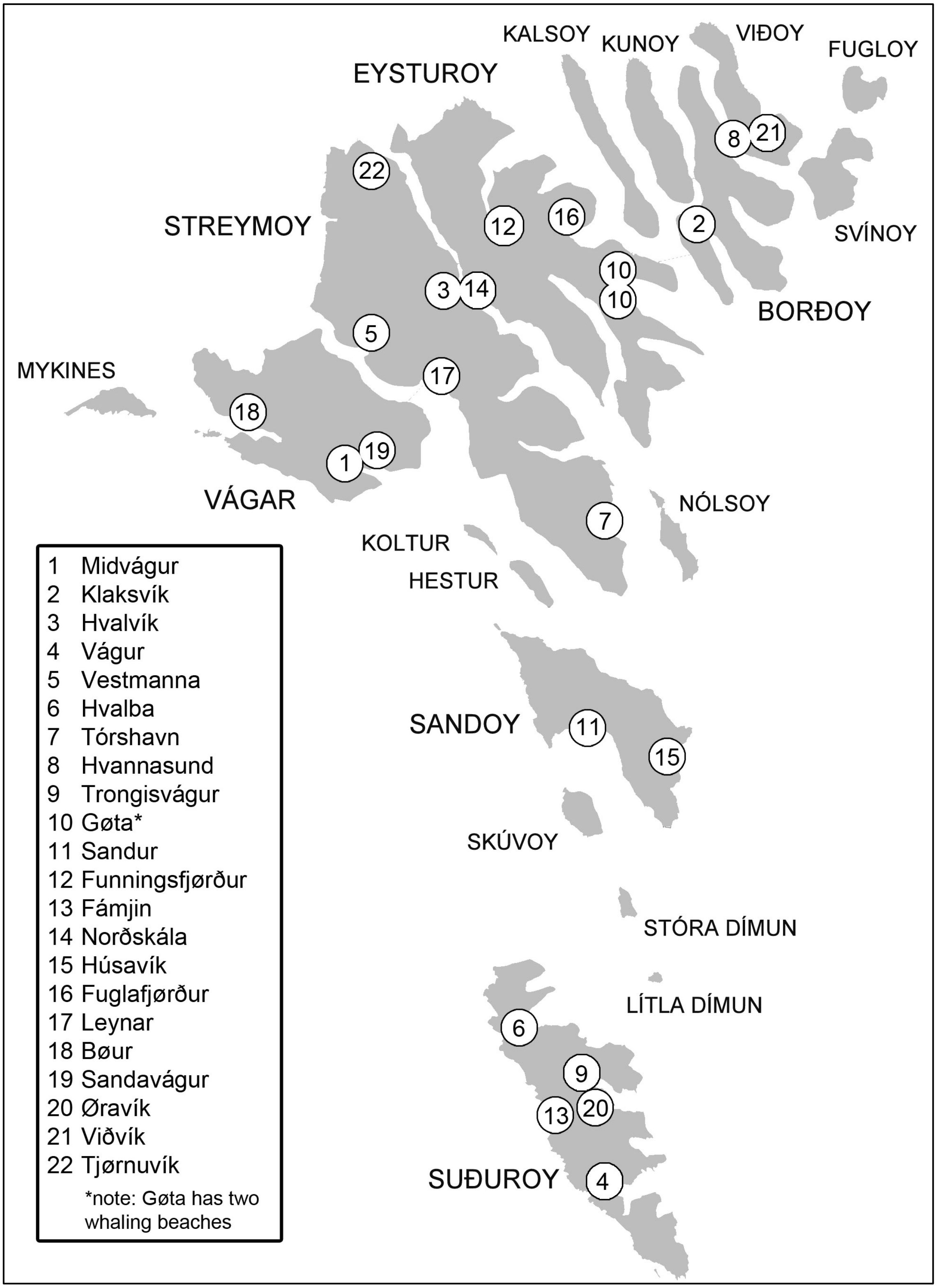


Figure 6.45: Map showing the 22 currently approved hvalvágir in the Faroe Islands, ranked by percentage of grindadráp that have occurred at each bay from 1587-2009. Data source: National Whaling Statistics, Føroya Náttúrugripasavn.

Figure 6.46: The artificial whaling beach at Vestmanna.

The limitation of whaling to certain authorized bays is part of the larger system of regulation and distribution that results in the measured use of whales as a resource. Grindadráp are by nature community events. It takes several dozen to several hundred active participants to successfully drive and slaughter a pod of whales. By limiting the places where this activity is allowed to occur, the government legitimizes whaling that is conducted on its terms, in its bays. The community nature of the grindadráp is reinforced by the equal sharing of meat and blubber throughout the grindadistrikt. The grindaformann and sýslumaður have the authority to call off grindadráp that are unnecessary, too large, or are not going well. Through an active scientific program the Faroese leadership makes informed choices about local whaling decisions. Whales are treated as a renewable natural resource that must be conserved and used wisely if it is to be available in the future. The single greatest environmental issue related to the grindadráp is the presence of MeHg and other toxins in the tissues of the whales and the human health effects that these toxins are causing.

CHAPTER 7: ANALYTICAL RESULTS

This chapter presents the results of the various experiments and inquiries conducted during the fieldwork for this project. The structure and order of this chapter is based upon that of the chapter on research methods. Much of the data gathered during the observation, participation, interview, and archival phases of the fieldwork are integrated into the text of the descriptive chapters—Chapters 5 and 6. This information is not repeated here; rather, specific points of investigation are presented that were not covered in the more general descriptions above.

First, the results of the student surveys are presented and analyzed. These surveys were designed to detect trends in the consumption of whale products in each location. In the Faroe Islands, the element of participation in whaling activities is also important, although there is not a ready analog to Faroese communal whaling in the context of St. Vincent, owing to the professional nature and limited workforce of the Vincentian whaling operation.

The catch records of the Faroese and Vincentian whaling operations form the basis of the next section of this chapter. As mentioned above, the Faroese whaling records span a long history, the earliest recorded grindadráp occurring in 1587. By contrast, in St. Vincent, detailed whaling records, those containing more data than simple annual totals of whales and dolphins caught, exist only from 2007—and even then must be extrapolated from the records of only one boat. However, less specific but still useful records of St. Vincent whaling can be obtained from previous scholarship. While many of these figures are admittedly only approximations, they do provide insight into the levels of effort and impact of the St. Vincent operation and will allow some comparison with Faroese whaling.

Finally, this chapter examines the data gathered through spatial analytical methods, specifically GIS in St. Vincent and coastal surveys in the Faroe Islands. To better understand the interactions between human activity and the natural environment, it is important to gather physical data alongside the types of data in which human geographers normally deal.

Student Surveys

St. Vincent

Among Vincentian students, cetacean meat and blubber are relatively popular foods (Figure 7.1). Blubber cooked in its own oil (referred to herein by the local name, "crisps") is slightly less popular than meat, but is still consumed by a majority of the youths surveyed. Cetacean oil is not very popular.

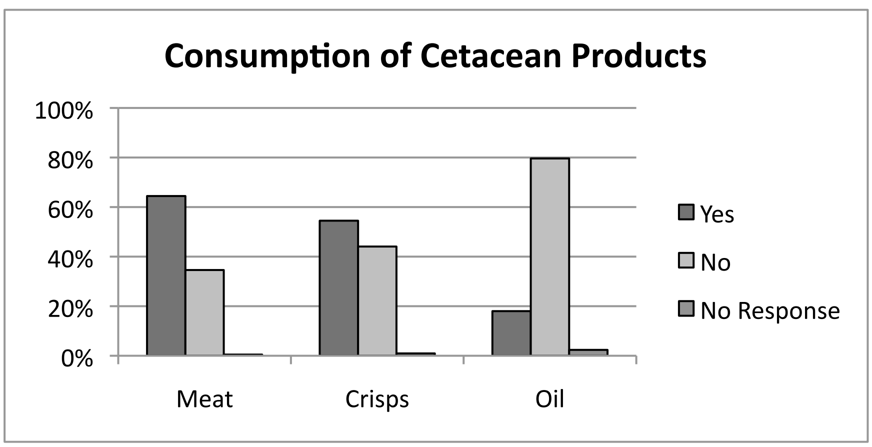


Figure 7.1: Responses given by students when asked if they consume/use the specified cetacean products. Vincentian youth survey (n=211).

Although the majority of participants report consuming cetacean meat, it is not an especially preferred food (Figure 7.2). Only ten percent prefer cetacean meat to other meats. Thirty-five percent rank cetacean meat equal to other meats in desirability and twenty-five percent prefer other meats to cetacean meat. Nine percent of participants do not like cetacean meat at all. Overall it seems to be a common food, but not a particularly favorite food.

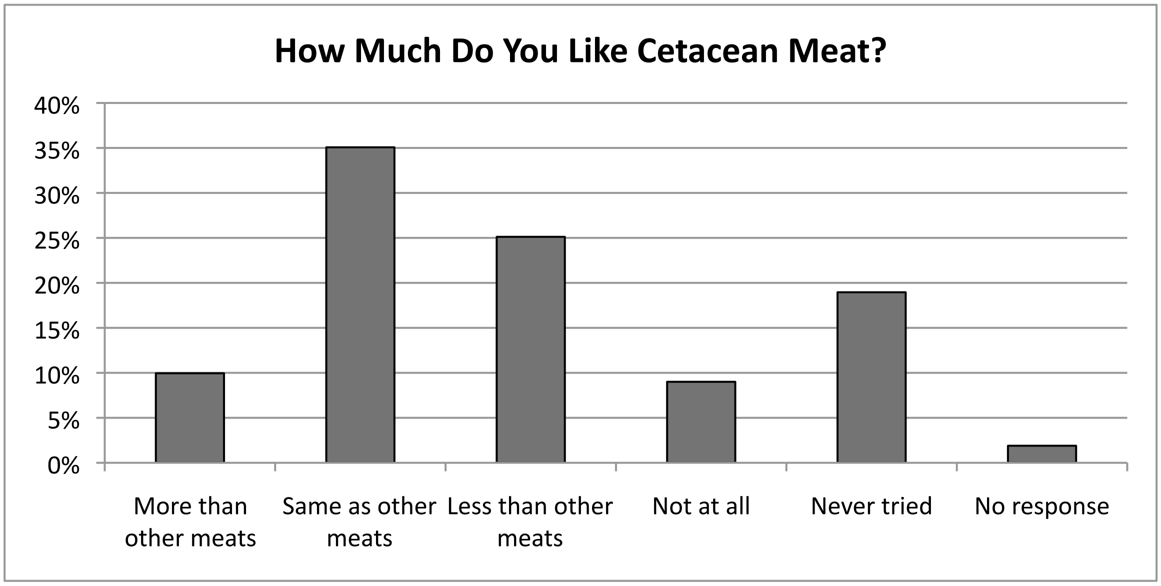


Figure 7.2: Responses to the question asking participants to rank their preference for cetacean meat vs. other meats. Vincentian youth survey (n=211).

Gender plays an important role in the consumption of whale products in St. Vincent (Figure 7.3). Male students are more likely than females to eat cetacean meat and to use oil, but students of both genders are equally likely to consume crisps. Gender also helps determine the frequency with which whale products are consumed (Figure 7.4). Of those who do consume the products, males tend to eat more meat per year than females while females use oil significantly more frequently than males. Both genders consume crisps with relatively equal frequencies. In analyzing the frequency of consumption, I did not take into account the zero-values added by those who abstain from the products completely.

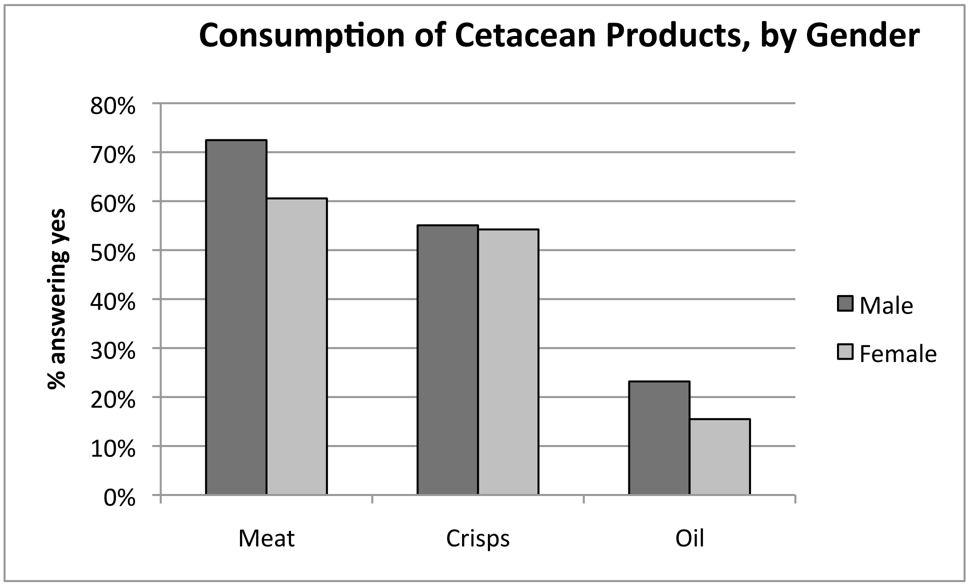


Figure 7.3: Percentage of males and females answering in the affirmative when asked if they consume/use the specified cetacean products. Vincentian youth survey (n=211).

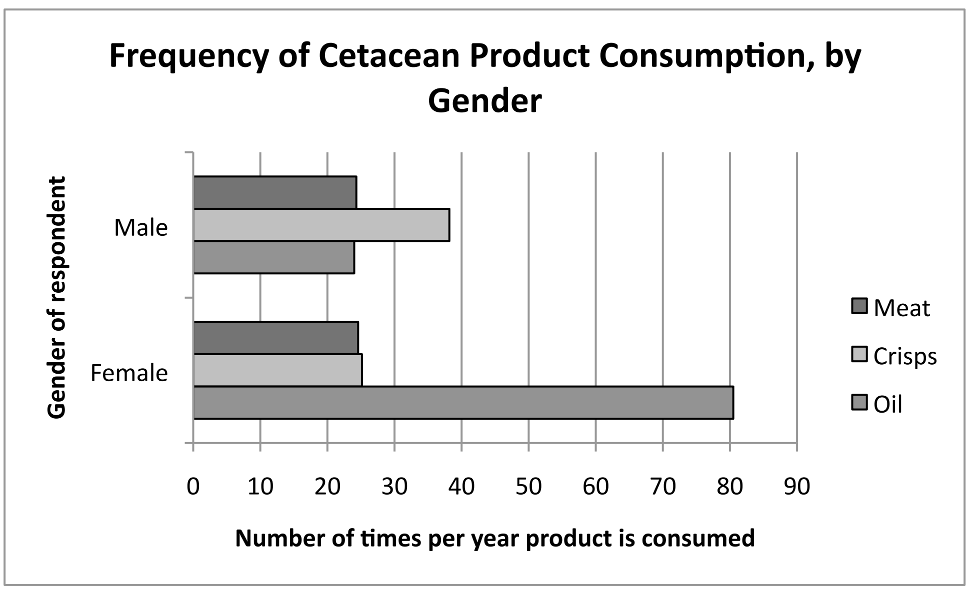


Figure 7.4: Average number of times per year that students in St. Vincent and the Grenadines consume cetacean meat, crisps, and oil, shown by gender. Vincentian youth survey (n=211).

Geography also plays an important role in whale product consumption (Figure 7.5). When analyzing survey responses by region, it is clear that students on the windward and leeward sides of the island who eat cetacean meat consume it most frequently. Among those that eat crisps and use oil, students on the leeward side and the south coast consume the most crisps, and those on the leeward side use oil the most regularly.

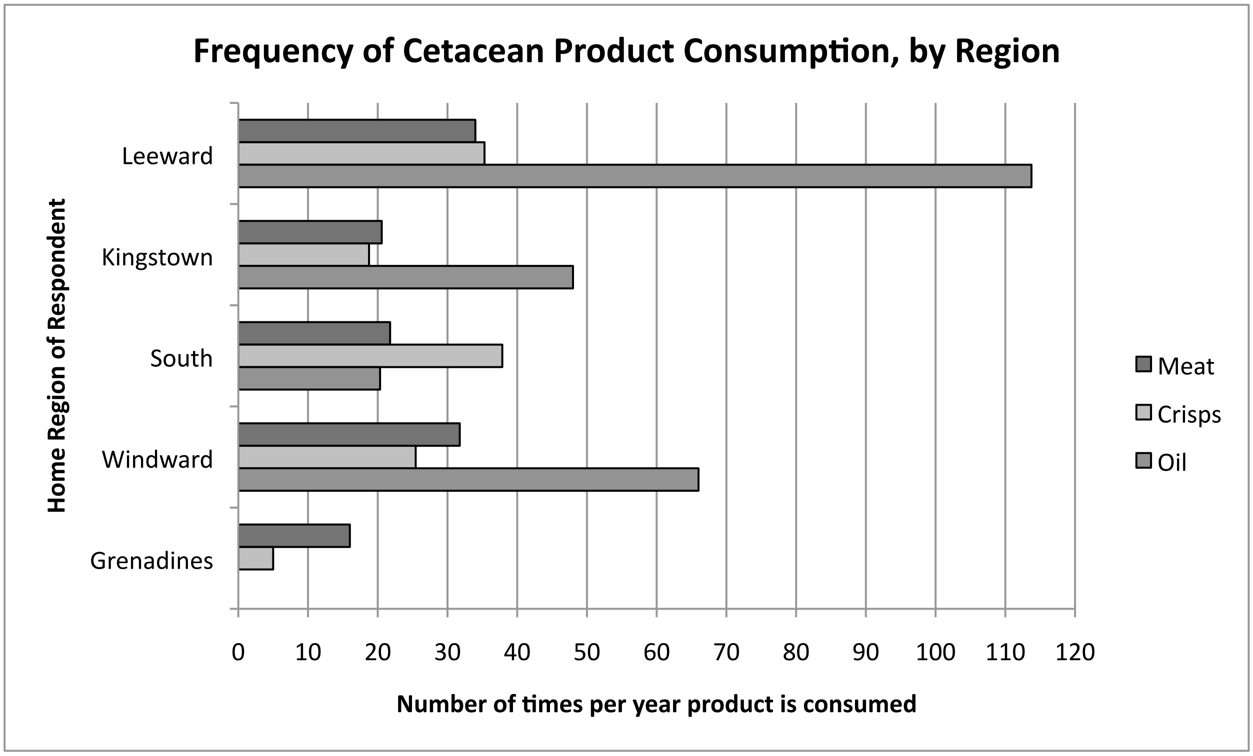


Figure 7.5: Average number of times per year that cetacean meat, crisps, and oil are consumed in St. Vincent and the Grenadines. Shown by region. Vincentian youth survey (n=211).

This geographical disparity in whale product consumption could be attributed to a regionality in Vincentian cuisine and preference, but is more likely due to a simple lack of availability in certain areas. Cetacean products are sold regularly from the fish market in Kingstown and from the homes and small shops of vendors in Barrouallie. The only time the products are not sold from these venues is when there has been a lengthy dearth of catches. Besides these two relatively permanent outlets, mobile vendors handle the majority of cetacean product distribution throughout St. Vincent. Each vendor establishes her preferred route of sales, taking the products from village to village by private car, often announcing her presence by blowing a conch shell. If a vendor does not include a certain village on her sales circuit, the residents of that village must travel to Kingstown, Barrouallie, or a village that is served by a mobile vendor.

Students who responded that they do not consume whale products were asked why not. This was presented as an open-ended question, but most students' responses fall into one of eight general categories (Table 7.1).

Table 7.1: Reasons given for not consuming cetacean products and percentage of respondents giving each reason. Vincentian youth survey (n=211).

	Meat	Crisps	Oil
Unavailable	26	22	25
Unfamiliar	5	19	25
Taste	18	19	11
Smell	10	3	19
Texture	5	10	--
Religion	19	17	3
Unnecessary	--	--	13
Unhealthy	2	2	3
Other	16	8	--

For a student to answer that he/she is unfamiliar with the products in question indicates that the whale products may not be available in the student's home village. Therefore, if a large number of students report not consuming whale products because the products are unavailable or unfamiliar, we can be reasonably sure that these students' home villages are not regularly served by a vendor. A geographical analysis of the regional variation in availability of whale products is given in Figure 7.6.

It is clear then, that cetacean meat is least available on the windward side and that crisps and oil are least available on the south coast. Popular response to the lack of availability of these products is generally negative, that is, most students would prefer to have greater access to cetacean products. Regionally, this dissatisfaction is varied, with slightly more-than-average desire for greater availability among students from the leeward side and the Grenadines, and slightly less-than-average among those from the south coast (Figure 7.7).

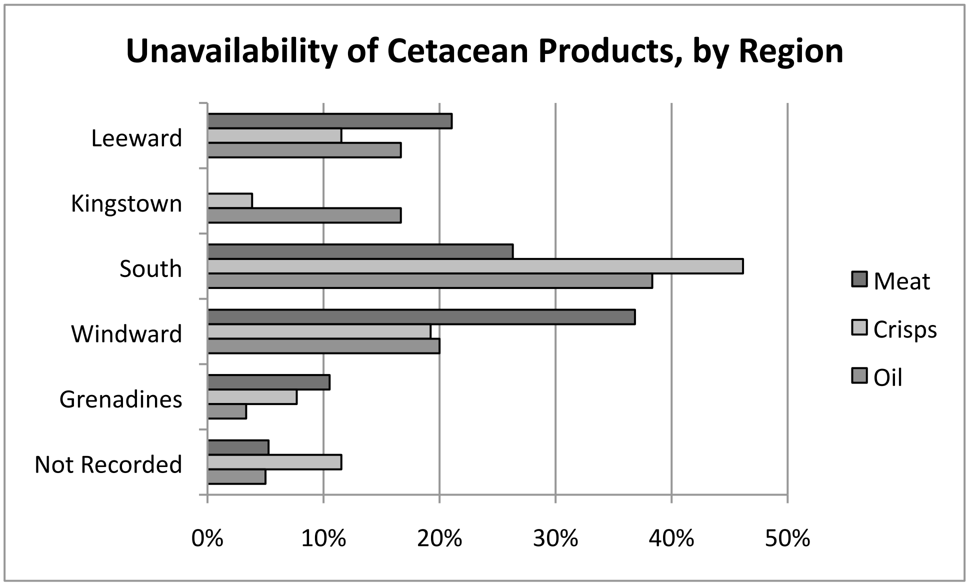


Figure 7.6: Percentage of participants indicating that cetacean products are unavailable or unfamiliar in their home area, by region. Vincentian youth survey (n=211).

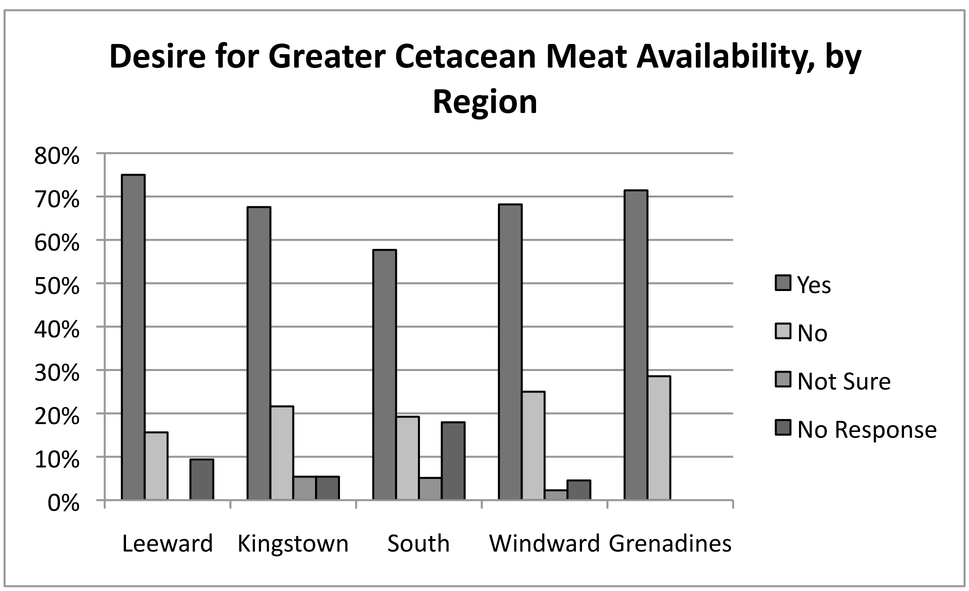


Figure 7.7: Responses to the question regarding whether the participant would like for cetacean meat to be more available. Vincentian youth survey (n=211).

Other reasons for not consuming whale products include simple matters of preference such as the taste, smell, and texture of the products as well as cultural reasons such as the use of other oils in place of whale oil for traditional purposes or religious beliefs prohibiting the consumption of whale-derived food products. Traditional uses for cetacean oil are shown in Figure 7.8. It should be noted that medicinal uses of the oil include both oral consumption and topical application.

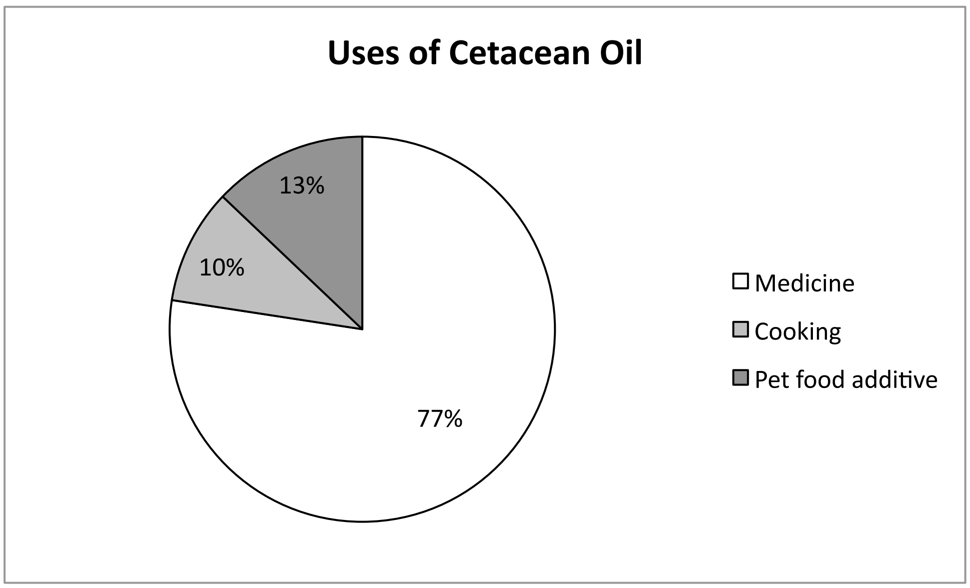


Figure 7.8: Reported uses of cetacean oil. Vincentian youth survey (n=211).

Most students surveyed consider cetacean meat to be a healthy food. Reactions were mixed on the healthiness of crisps and a large number of participants were unsure of whether oil is a healthy product or not (Figure 7.9). Those who report consuming or using the products are predictably more likely to endorse their health benefits than those who do not. Surprisingly however, a significant percentage of those who deem the products unhealthy continue to partake: thirty-eight percent of those who believe cetacean meat is unhealthy, sixty-two percent of those who believe crisps are unhealthy, and eleven percent of those who believe whale oil is unhealthy continue to use or consume the products. Perhaps for these participants, whale meat, crisps, and oil constitute "guilty pleasures" or perhaps they simply do not have control over their own diets—a very likely scenario for students still living at home with parents.

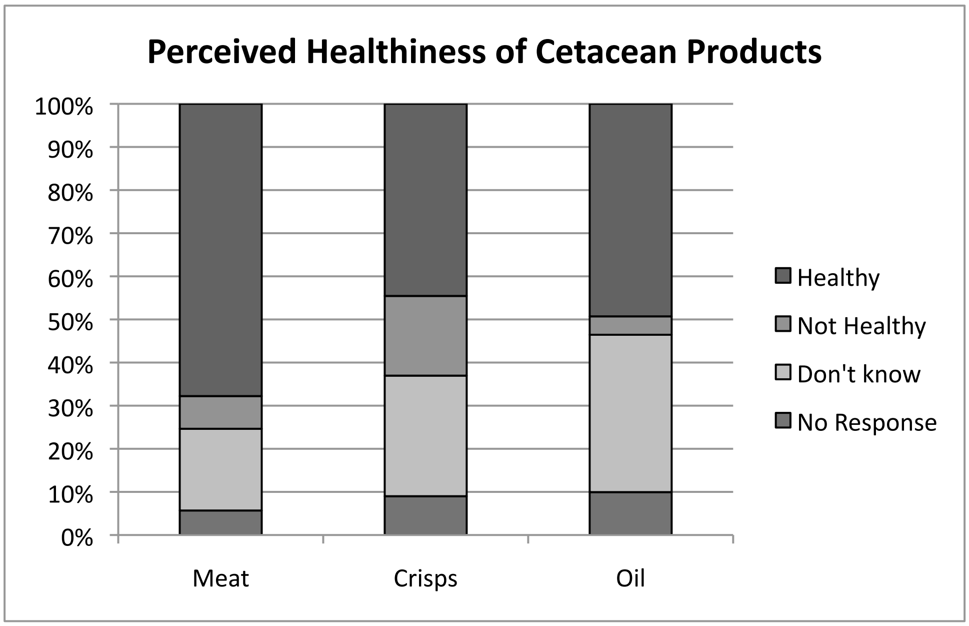


Figure 7.9: Responses to the questions asking whether cetacean meat, blubber ("crisps"), and oil are healthy products. Vincentian youth survey (n=211).

The next series of questions were intended to address the familiarity of the student participants with St. Vincent's artisanal whaling operation. Students were asked if they knew any whalers or vendors, if they had been to Barrouallie to see the procedure of butchering and processing the whales, and whether they had seen a dolphin or a pilot whale, dead or alive, but whole and unprocessed. Several participants added comments to the effect that they had not seen these things in person, but on television. Answers lean strongly toward unfamiliarity, even when "knowledge" through television is included (Figure 7.10). The element of the whaling operation most familiar to the survey participants is the vendors. This is most likely due to the mobility of the vendors throughout the villages of the island, whereas witnessing other elements of the operation would likely require a trip to Barrouallie.

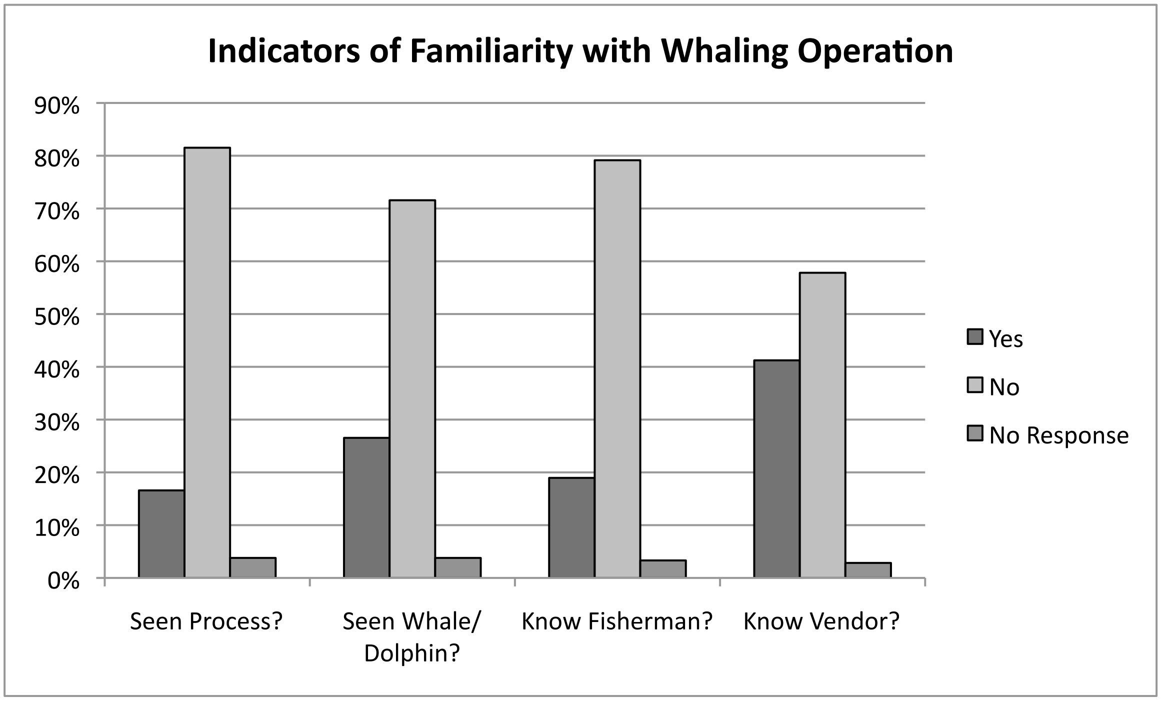


Figure 7.10: Responses indicating familiarity with elements of the Vincentian artisanal whaling operation. Vincentian Youth Survey (n=211).

Even more uniform than the participants' unfamiliarity with the Barrouallie-based elements of the whaling operation is the near-consensus that a career in the industry—either as a whaler or a vendor—is not something to be considered. Only one percent of students indicated that they would consider such a career; ninety-seven percent answered in the negative and one percent were undecided.

This overwhelming lack of desire to work in the whaling operation should be seen as indicative only of the perceptions of these survey participants. Most whalers and vendors do not attain the level of education that these students are currently on track to complete. Indeed, many whalers and vendors do not have the education that these post-secondary students have already completed. To be sure, some whalers and vendors are indeed educated—Samuel Hazelwood has completed secondary school and has attended fisheries colleges in Japan and Canada—however, neither whaling nor vending is a job that requires a great deal of educational credentials.

According to Chief Fisheries Officer Raymond Ryan, pilot whale meat and breadfruit is "a national dish" of St. Vincent and the Grenadines (personal communication). At the Bagga Fish Fest, I often heard this claim repeated. However, among the student participants in the survey, only a minority would give the dish that honor (Figure 7.11). Many participants added comments indicating that jackfish (*Caranx spp.*), not "blackfish" best represents St. Vincent and the Grenadines. However, some participants remarked that although pilot whale meat is not included in the national dish, it should be.

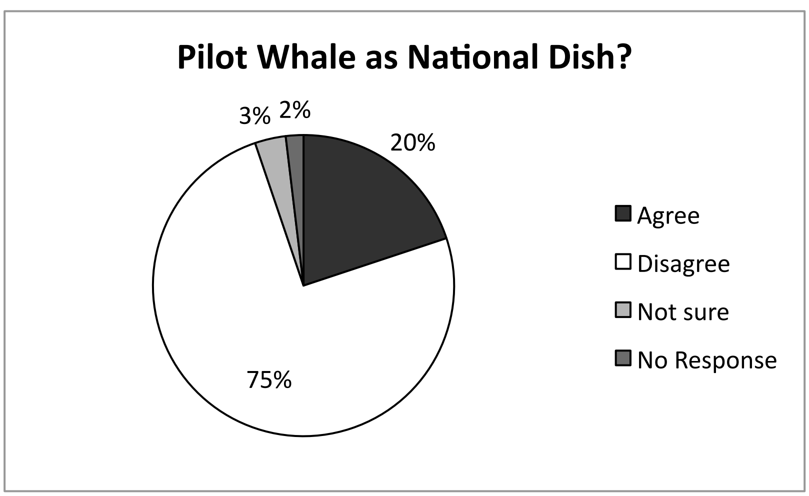


Figure 7.11: Rates of agreement with the statement that "blackfish and breadfruit" is the national dish of St. Vincent and the Grenadines. Vincentian youth survey (n=211).

The future of artisanal whaling is uncertain, worldwide. However, the capitalistic nature of the operation in St. Vincent may allow for easier prediction than for whaling operations in other places owing to the principle of supply and demand. Based upon the above data, it appears that the market for cetacean products is strong, although inequalities in demand exist both geographically and by gender. When asked directly if whaling will continue in St. Vincent, the majority of survey participants express belief that it will (Figure 7.12). A significant percentage indicate uncertainty, but only a small fraction believe that whaling will not continue.

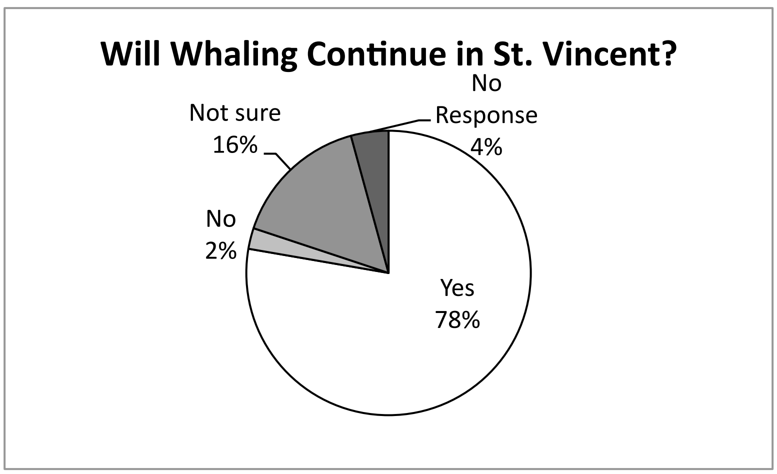


Figure 7.12: Responses to the question of whether artisanal whaling will continue in St. Vincent. Vincentian youth survey (n=211).

<u>Faroe Islands</u>

In the Faroe Islands there are two main roles that one may play with regard to the artisanal whaling operation: consumer and participant. Often these roles overlap, but they will be addressed here first individually, before being examined with relation to one another.

A vast majority of Faroese survey participants report eating cetacean meat and a smaller majority report eating blubber (Figure 7.13). Males are only slightly more likely to consume cetacean meat than females. Blubber, however, is significantly more popular amongst males than females (Figure 7.14)

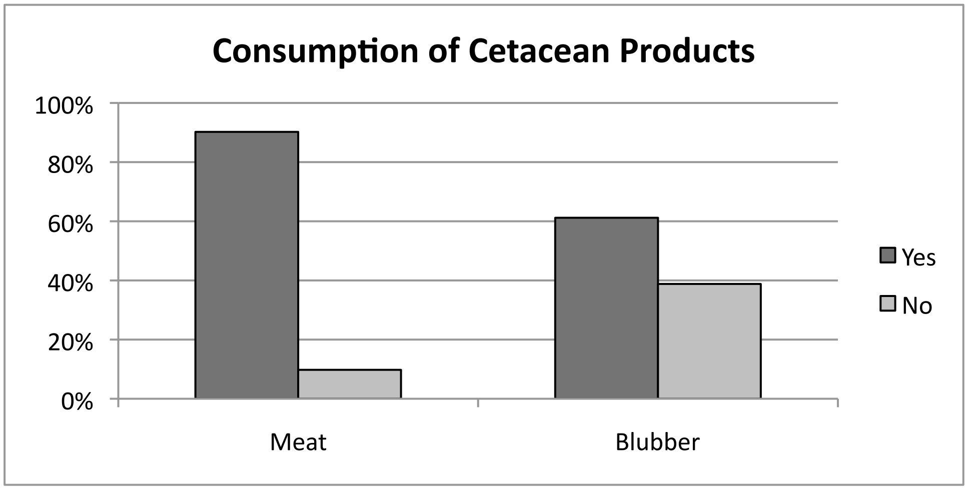


Figure 7.13: Responses given by students when asked if they consume the specified cetacean products. Faroese youth survey (n=225).

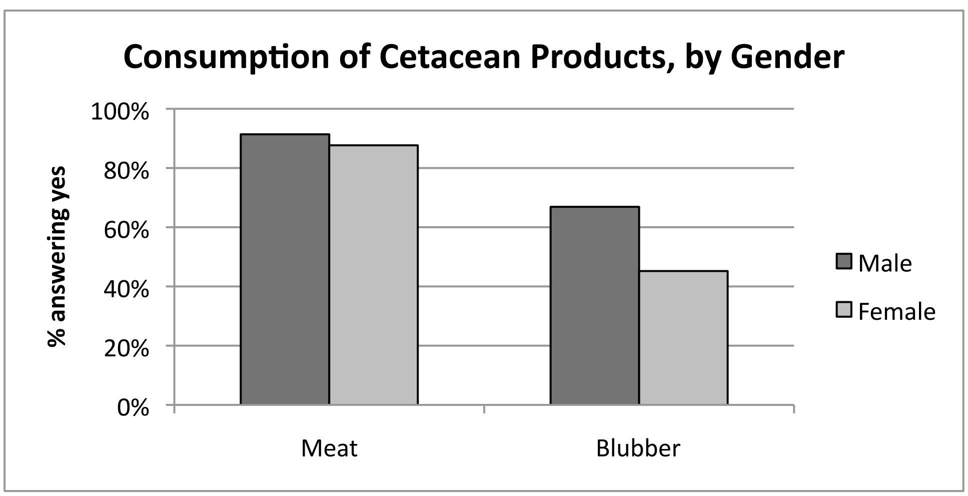


Figure 7.14: Percentage of males and females answering in the affirmative when asked if they consume the specified cetacean products. Faroese youth survey (n=225).

On average, survey participants report consuming cetacean meat and/or blubber 21.4 times per year. This takes into account only frequencies reported by those who do affirm eating the products (i.e. zero-values are not calculated into the average). The most significant variables in determining consumption frequency are a person's gender (Figure 7.15) and place of origin—dichotomized as being from the capital area or elsewhere (Figure 7.16).

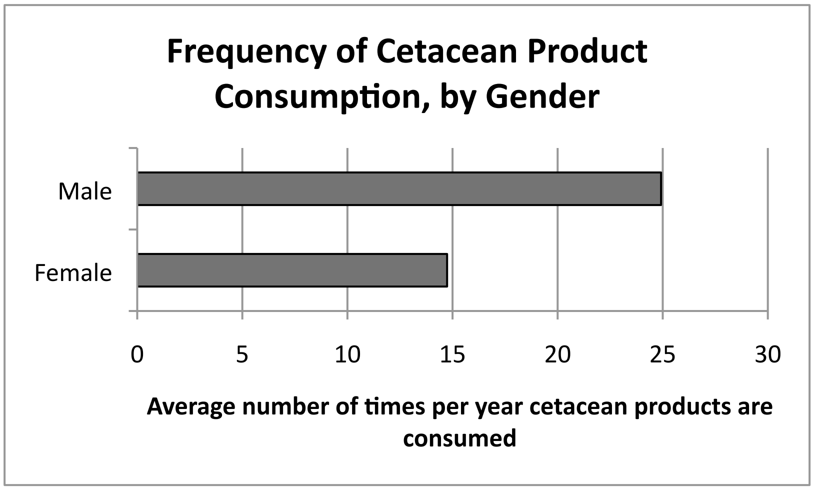


Figure 7.15: Average number of times per year that cetacean products are consumed, shown by gender. Faroese youth survey (n=225).

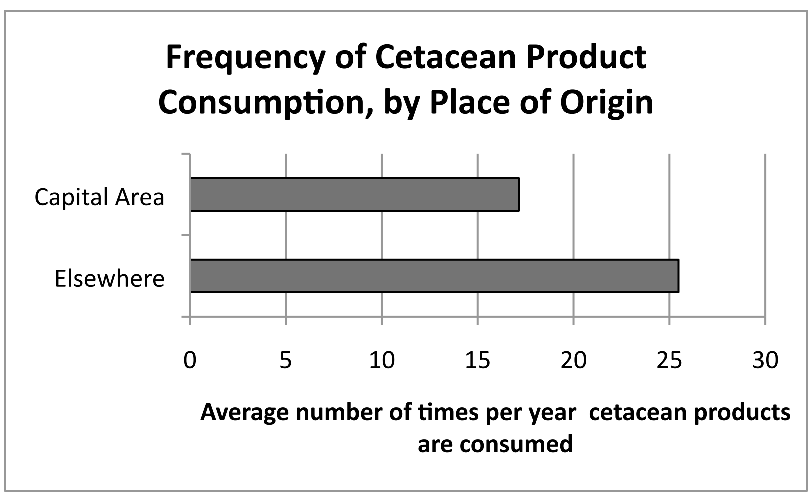


Figure 7.16: Average number of times per year that cetacean products are consumed, shown by place of origin. Faroese youth survey (n=225).

When asked how often they consume cetacean products, many of the survey participants provided qualitative, rather than quantifiable answers. In retrospect, the survey should have been designed in such a way that it required a quantifiable value rather than allowing a qualitative assessment. Nonetheless, valuable information can still be drawn from these qualitative data. Students gave responses indicating that they consume cetacean meat and blubber very frequently (answers such as “all the time” or “as often as possible”) or rarely (answers such as “not often” or “only once in a while”) in geographical and gender-based patterns that generally corroborate the responses of those who provided quantitative answers.

Another demographic factor in determining consumption pattern is whether the survey participant uses a Faroese or Danish passport. Because every Faroese citizen is given the choice of which passport to carry, and because a Danish (EU) passport arguably makes international travel easier owing to its higher level of recognizability, I take the view that carrying a green Faroese passport is a statement of national identity. Since the grindadráp has formerly been used as a symbol of Faroese national identity (and to some degree remains so) it is interesting to see how these two attributes coexist (Figure 7.17).

The differences between holders of green and red passports in eating whale meat and participating in the grindadráp are slight. Greater distinction exists regarding blubber consumption and enjoyment of the grindadráp. Whale blubber is an acquired taste to be sure, and has, in my personal experience, been offered to foreign researchers as a way of gauging their objectivity. (The assumption being that an undercover anti-whaling activist, which I was occasionally suspected of being, would not consume whale blubber but that a pure-intentioned academic researcher would. I also found this tactic to be used in St. Vincent as well as during my brief visit to a whaling village in St. Lucia.) Blubber, by its status as a unique and sometimes unappetizing food product takes on a new meaning, transcending that of ordinary food, to become a symbol of Faroese solidarity.

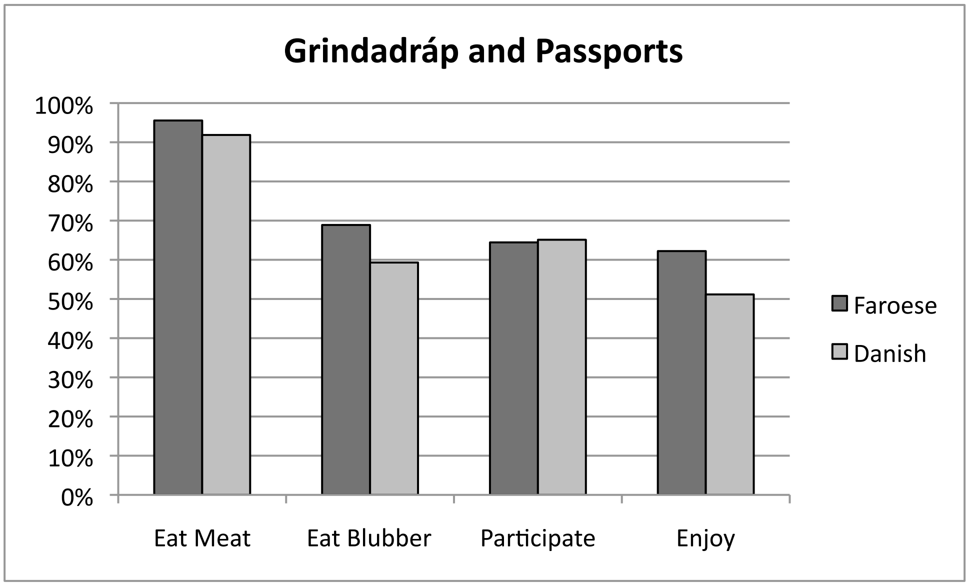


Figure 7.17: Consumption, participation, and enjoyment patterns of survey participants, dichotomized by chosen passport: green Faroese or red Danish (EU). Faroese youth survey (n=225). Note: All survey participants were given the option to choose between the two passports.

Similarly, participation in the grindadráp may be considered a "duty" of any able-bodied Faroese male, but enjoyment of the activity is certainly optional. Perhaps those who identify more strongly with their Faroese nationality, as evidenced by their choice of passport, also express their nationalism through their enjoyment of the grindadráp and consumption of the products it produces.

Despite the possible existence of cultural and nationalistic pressures, participation in the grindadráp is completely voluntary. Whether one participates or not usually has no bearing on the amount of meat and blubber that one receives. In certain rare instances, usually involving a small catch in a relatively populous area, the sýslumaður may decide to distribute only a *drápspartar*—a killer's share—meaning that the meat and blubber are divided only among those that participated in the grindadráp. The drápspartar is a controversial and recent development in the longstanding traditional division of the catch after a grindadráp and has "no sanction in the whaling regulations," thus should not be considered normative (Joensen 2009, 145). Neither participation in the grindadráp nor even presence at the beach where the activity takes place is usually required in order to receive a share of the meat and blubber.

Still, a majority of survey participants acknowledge participating in the grindadráp (Figure 7.18). Many regard simply being at the site of the grindadráp and observing the activities—as opposed to staying home—as participation, and these must be segregated from the more "active" roles for this analysis (Figure 7.19).

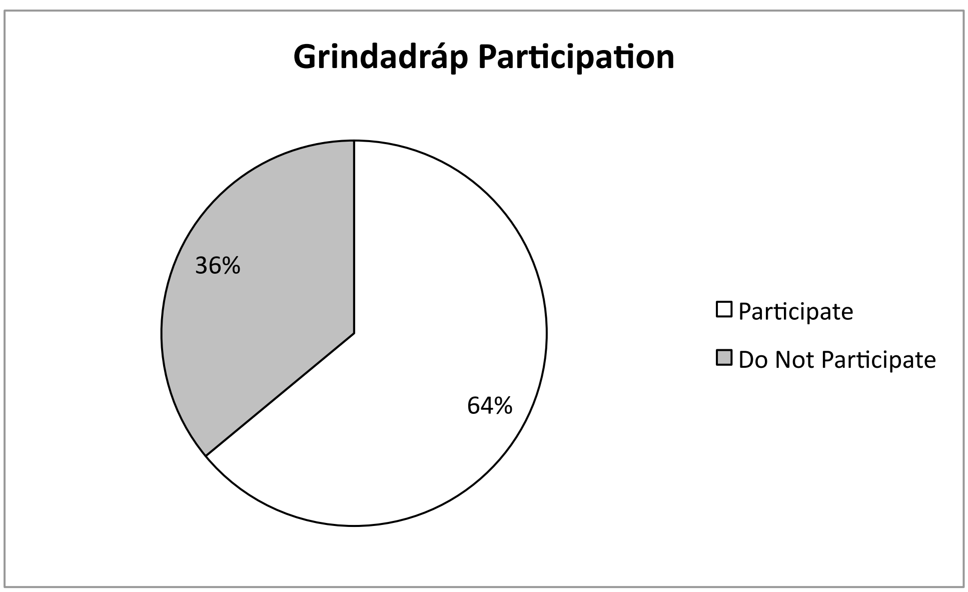


Figure 7.18: Participation in the grindadráp. Faroese youth survey (n=225).

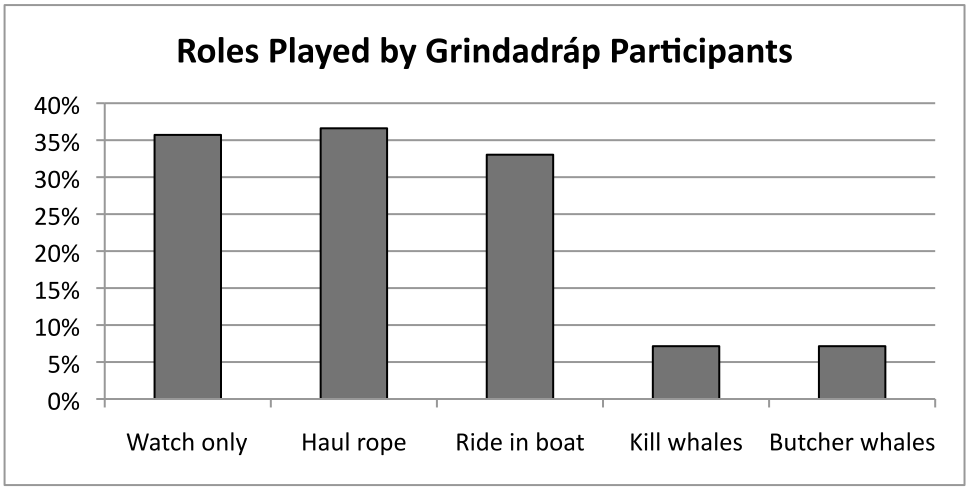


Figure 7.19: Roles played by survey participants who do participate in the grindadráp. Faroese youth survey (n=225). Note: Total is greater than 100 percent because some participants play more than one role.

The various roles played in the grindadráp are dependent to a large degree upon the participant's gender (Figure 7.20). Males are more than four times more likely than females to participate in active roles such as hauling hooked whales on ropes, riding in the boats, killing, and butchering whales.

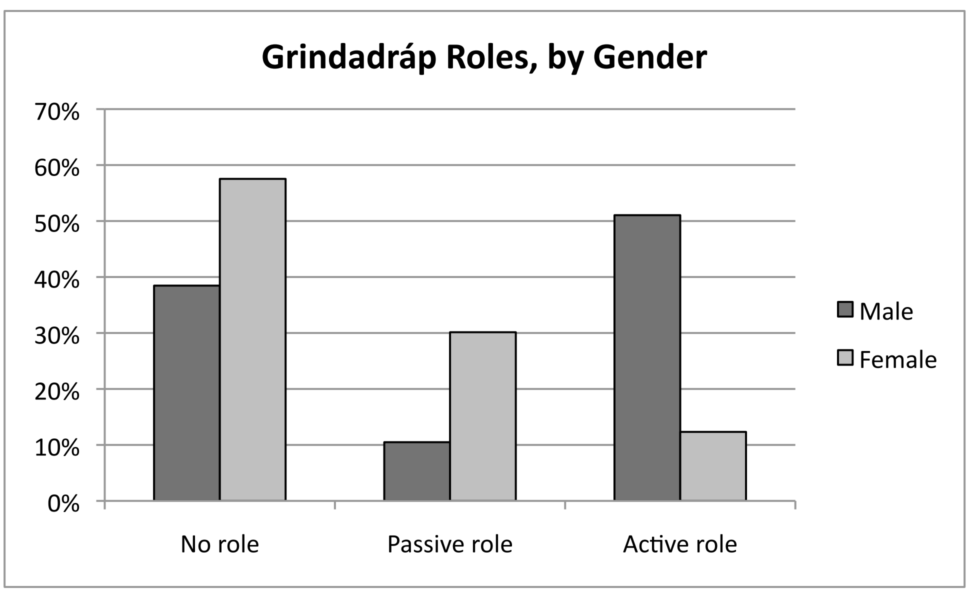


Figure 7.20: Active and passive roles played by survey participants who take part in the grindadráp. Faroese youth survey (n=225).

Analysis of the participants' hometowns—either dichotomized as being part of the capital area or not, or as a whaling village or not—reveals no trends as to playing of active or passive roles in the grindadráp. Comparing participants holding Faroese passports with those holding Danish passports also produced no significant differences in the active or passive participation in the grindadráp.

The health risks associated with eating cetacean meat and blubber have been well documented and publicized in the Faroe Islands (Weihe 1998, 2009; Weihe and Joensen 2008). Despite these public health warnings, relatively few survey participants have changed their dietary habits in response. The 1998 health recommendations came at a time when the average age of the 2009 survey respondents was only 7 years, so few could be expected to have abided by them or to have been in control of their own diets at that time. However, the 2008 recommendations were both recent and well publicized by the time of this survey. Still, eighty-one percent of participants in this survey did not change their dietary habits as a result of the 2008 recommendations.

A self-reported understanding of the science behind the dietary recommendations has no effect upon actual dietary changes. Of those who report that they do understand the science, only twenty percent changed their dietary habits as a result of the 2008 recommendations—an insignificant increase over the eighteen percent of those who report that they do not understand the science, yet still changed their diets in compliance with the health recommendations.

As for familiarity with the authorities involved in the grindadráp, slightly under one-third (thirty-one percent) of the survey participants indicated that they know one or more grindaformann. This value was not significantly affected by the participant's hometown—whether an approved whaling bay or not—a point mediated by the fact that it is not a prerequisite for grindaformenn to live in a village with an approved whaling bay.

Finally, given the health recommendations and the predictions of the physicican upon whose research they are based—that the grindadráp will decrease in frequency and then cease altogether during the next few decades—it is interesting to see the view of the Faroese youth on the subject of the future of the grindadráp (Figure 7.21). When asked if the grindadráp would continue, fifty-one percent of the survey participants are optimistic that it will. An additional thirty-seven percent are hopeful, but not confident enough to answer in the affirmative. Only six percent of participants believe that the grindadráp will cease.

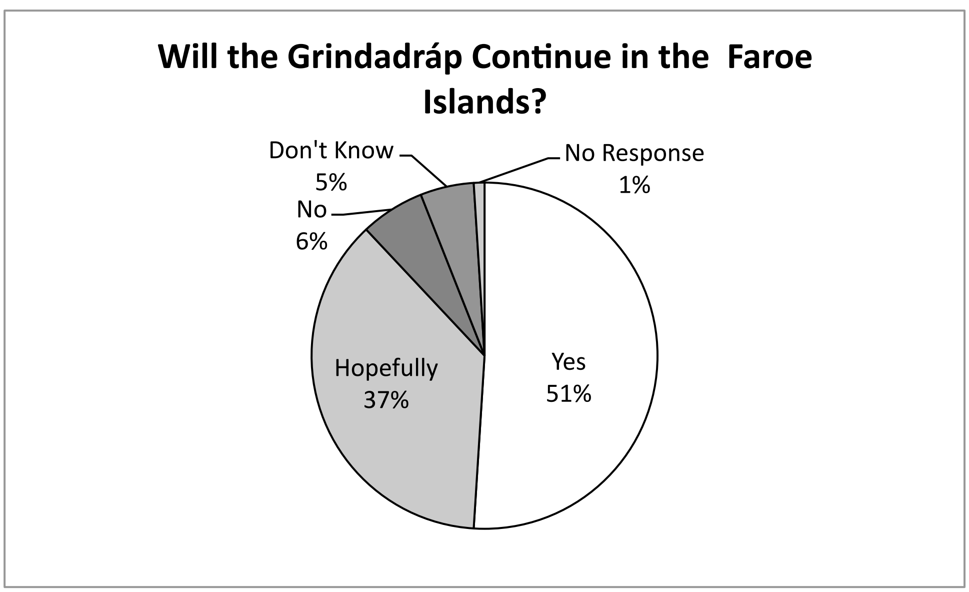


Figure 7.21: Responses to the question, "Will the grindadráp continue in the Faroe Islands?" from the Faroese youth survey. Faroese youth survey (n=225).

If the grindadráp were to come to an end it would leave a void in both the Faroese economy and culture. Economic concerns and the costs and benefits of alternatives to the free food supply that the grindadráp provides are discussed below. To fill the gap left if the grindadráp were to cease completely, another local food would be promoted to the status of national symbol now held by dried pilot whale meat and blubber (Table 7.2). According to a majority (sixty-two percent) of the participants in this survey, the best alternative would be a local dish made from dried lamb called *skerpikjøt* (SHESH-pa-chet). Other suggestions were nearly all either from a locally-caught fish or one of the many edible seabirds that nest on the Faroe Islands.

A minority of survey participants answered that nothing could replace pilot whale meat and blubber. It is interesting to note that seventy-one percent of those for whom there is no possible replacement for their national dish came from a village with an approved whaling bay.

Table 7.2: Responses to the question, "What would replace pilot whale meat and blubber as the Faroese national dish, if pilot whaling were to cease?" and percentage of participants giving each response Note: Total is greater than 100 percent because multiple answers were allowed. Faroese youth survey (n=225).

Replacement National Dish	
Sheep	62
Fish	41
Bird	15
Other	5
"Nothing"	4

Analysis of Whaling Records

The use of whaling records is a common approach to deduce information on such topics as past species abundance, habitat range, migration patterns, and physical oceanography (Maury 1852, 1857; Townsend 1931, 1935; Ross 1974; Tillman and Donovan 1983). Whaling records have continued to provide valuable information on these topics in recent years, and have aided our understanding of the long-term effects of whaling and species recovery rates (e.g. Baker and Clapham 2004; Clapham et al. 2004; Shelden et al. 2005; Smith and Reeves 2005; Bannister et al. 2008; Josephson et al. 2008; Smith et al. 2008).

In this section, I analyze the available whaling records from St. Vincent and the Faroe Islands, looking specifically at three topics: hunting pressure, or the effects of the whaling operations on the local cetacean stocks; time-to-death, or the effects of whaling on individual whales; and the economics of whaling, or the effects of the whaling operations on the local human societies. In this section I rely upon data collected through a variety of means and over a long temporal span. At the one extreme is historical data from the Faroe Islands dating back to the sixteenth century. At the other is data that I collected myself in both locations during fieldwork conducted over the past five years.

Hunting Pressure

St. Vincent

There is no central repository for whaling records in St. Vincent, nor do whalers keep their own records for very long. The best sources of whaling records are the various studies that have been conducted by academic researchers over the years. This underscores the importance of researchers publishing not only their results and analyses, but their data as well (see Appendix G and Appendix H). Beginning with Caldwell and Caldwell in 1971, whose records date back to 1962, it is possible to reconstruct the annual catches of pilot whales and dolphins from that year to the present.

When a researcher is present in St. Vincent, he or she has access only to the current records and the records dating back a few years. For example, I began my fieldwork in St.

Vincent in the summer of 2008—a time at which the extant records dated back only to January 2007. Thus, when reconstructing the catches from 1962 to the present (Figure 7.22), one is left with gaps in the data. Gaps that exist indicate years during which there were no researchers present in the field.

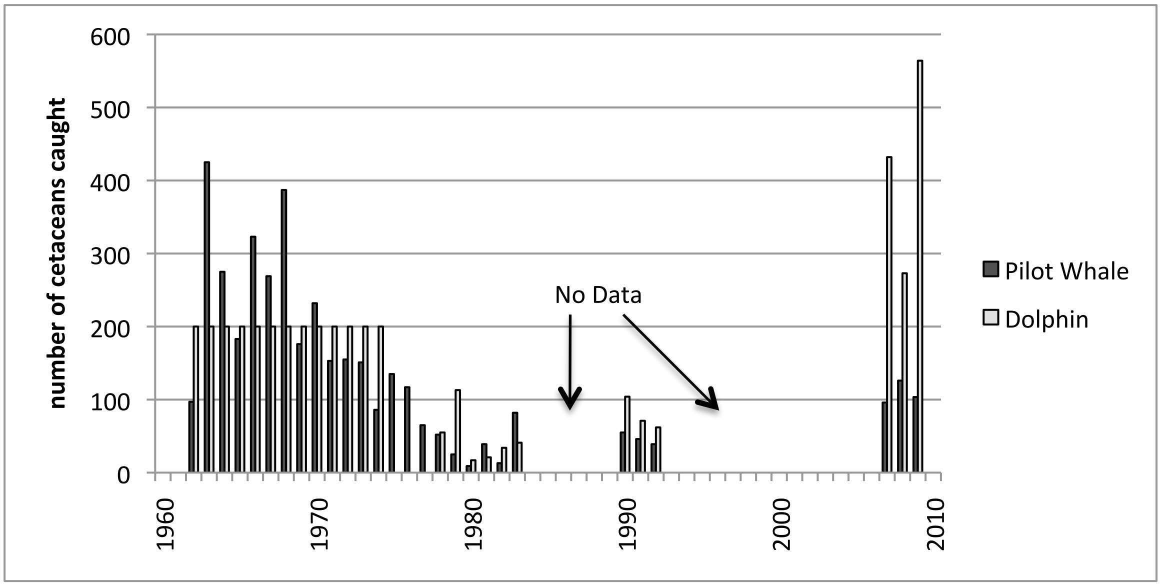


Figure 7.22: Catch statistics for *Globicephala macrorhychus* (short-finned pilot whale) and combined various dolphin species in St. Vincent, 1962-2009. Annual average (pilot whale) = 141.15, (dolphin) = 159.29. Totals not calculated because of missing data. Sources: Caldwell and Caldwell 1971, Price 1985, Adams 1994, Scott 1995, and the financial records of Samuel Hazelwood. Note: For the years 1975-1977, no dolphin catch data exists.

The total catch in St. Vincent, throughout its recorded history, has always consisted of both pilot whales and dolphins. It is important to note that the records for dolphin catches between 1962 and 1974 are based upon estimates provided by the Caldwells (1971; Scott 1995). Based upon these estimates, it appears that 1963 was the year in which the percentage of the catch made up of pilot whales was the greatest (sixty-eight percent). However, the data based upon recorded catches of dolphins instead of estimates shows the catch consisting of the greatest percentage of pilot whales (sixty-seven percent) in 1983.

The most recent year for which complete records are available, 2009, saw the largest annual catch of dolphins, 564, since the available records began in 1962. In 2009 dolphins also made up the largest percentage of the total catch (eighty-four percent), as compared to pilot whales. The general recent trend has been toward dolphins making up an increasing percentage of the total catch (Figure 7.23). However, the catch has consisted of greater than fifty percent dolphins in all but eight of the twenty-five discontinuous years for which records exist, despite Mitchell's (1975, 18) assessment that "pilot whales ('blackfish') form the bulk of the catch."

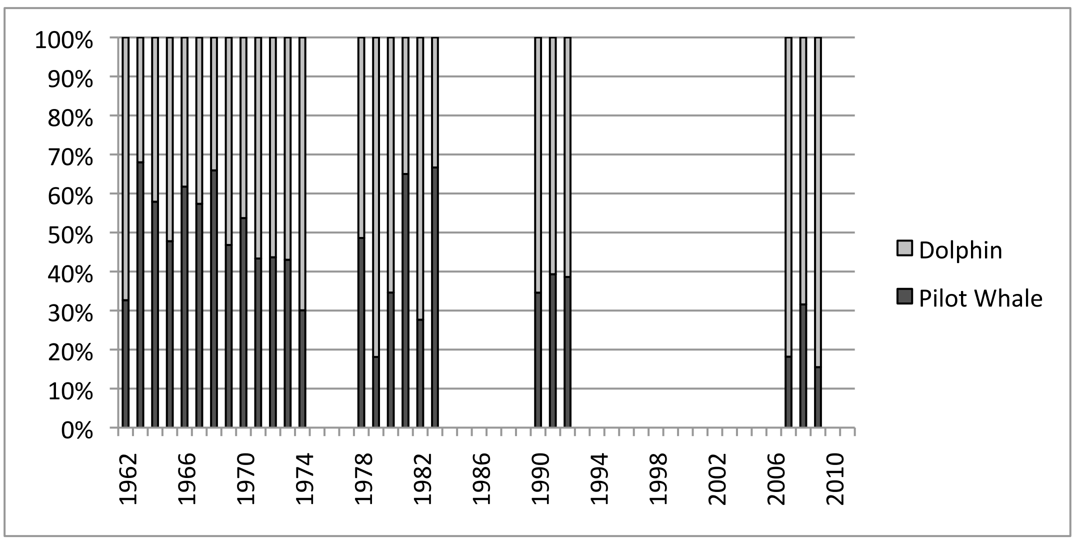


Figure 7.23: Percentage of catch, pilot whales and dolphins. 1962-2009. Gaps indicate no data available. Sources: Caldwell and Caldwell 1971, Price 1985, Adams 1994, Scott 1995, and the financial records of Samuel Hazelwood.

Perhaps one of the best methods of gauging the sustainability of the whaling operation, in the absence of cetacean population data is to examine the operation's efficiency, that is, the size of the catch divided by the amount of effort—defined as the number of boats in operation during a given year. Although this method is imprecise and inferior to the data that could be collected through a sighting survey, it has been used in research with historical (Townsend

1931, 1935; Ross 1974) and contemporary whaling records (Scott 1995) in the absence of stock assessments. This efficiency data (Figure 7.24) indicates that the number of pilot whales caught per boat has fluctuated less than the number of dolphins caught per boat—the latter figure having increased dramatically during the past two decades.

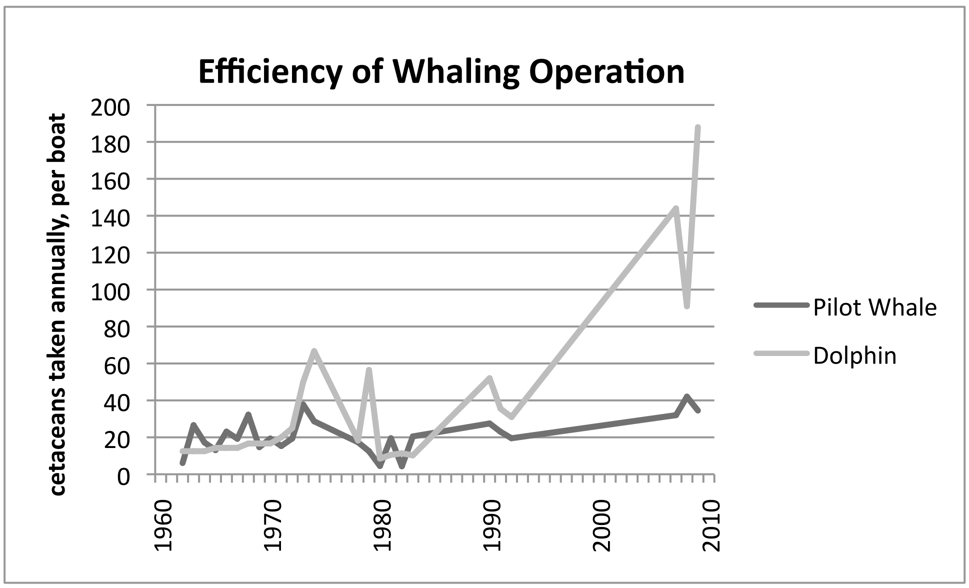


Figure 7.24: Pilot whales and dolphins taken annually, divided by the number of boats operating each year. Sources: Caldwell and Caldwell 1971, Price 1985, Adams 1994, Scott 1995, and the financial records of Samuel Hazelwood.

Previous scholars have rarely made distinctions among the various species of dolphins caught in their presentation of whaling records. It is common to find two tallies in the records for cetacean catches in St. Vincent: *blackfish*, almost always exclusively pilot whales, and *porpoise*, meaning any species of dolphin (there are no true porpoises in the Caribbean Sea [Ward et al. 2001]). Use of the latter term is almost certainly derived from the Vincentian Creole *papas* (a variant of *porpoise*), used by whalers and others to generically signify cetaceans from a number of dolphin species. In the scientific literature, *porpoise* usually indicates a cetacean of any species except *Globicephala macrorhychus*.

Occasionally whalers from Barrouallie take cetaceans that are neither pilot whales nor dolphins. During the three years of records to which I have access, twelve orcas were caught—one in 2007 and eleven in 2008. Barrouallie whalers caught no orcas in 2009. The orca is not an IWC species so the same principles of management on a national level apply to this species as to pilot whales and dolphins. However, local sources informed me that St. Vincent whalers occasionally take whales of IWC species. In 2000 a Bryde's whale (*Balaenoptera edeni*) was taken (Ward et al. 2001) and sperm whales are taken very rarely, perhaps one every ten years. The takes of these IWC whales are in violation of the moratorium and are addressed by the completion of a "Report on Infractions" (Appendix C) and usually the assessment of a fine against the whalers. The Fisheries Division usually also confiscates the carcass so that whalers cannot earn a profit from these illegal takes.

During my fieldwork, I was present for the capture of seventy-six cetaceans by the three boats working; the species makeup of these is presented below (Table 7.3). I do not claim that the makeup of the catch that I witnessed is representative of any long-term averages. However, it does provide an idea of a possible species makeup for the portion of the catch simply labeled "dolphin" in the above charts or "porpoise" in the literature.

Table 7.3: Species makeup of the dolphins caught during fieldwork, 2009.

Species Common name (*Scientific name*)	Percentage of Total Catch (June-July 2009)
Spinner dolphin (*Stenella longirostris*)	69
Atlantic spotted dolphin (*Stenella frontalis*)	24
Melon-headed whale (*Peoponocephala electra*)	5
Dwarf sperm whale (*Kogia sima*)	1
unknown	1

During June and July 2009, the primary species of dolphin caught was *Stenella longirostris*, the spinner dolphin. The second most frequently caught species was *Stenella frontalis*, the Atlantic spotted dolphin. Less often caught were *Peoponocephala electra*, the melonheaded whale; *Kogia sima*, the dwarf sperm whale; and one dolphin that was processed into meat and crisps before I was able to identify its species.

Faroe Islands

If Vincentian whaling records are sparse and of a short-term nature, the Faroese records are exactly the opposite. Spanning over four centuries, the records compiled by Faroese biologists and historians have been called "surely… one of the longest runs of whaling statistics available anywhere in the world" (Mitchell 1975, 77). The records date to 1587 for pilot whales (Figure 7.25) and to 1584 for bottlenose whales (Figure 7.26; see discussion in Chapter 6 regarding the disagreement over the identification of the species represented by the earliest record). Records for these two species are unbroken from 1709 to present. Records also exist from 1803 for bottlenose dolphins (Figure 7.27) and from 1872 for white-sided dolphins (Figure 7.28).

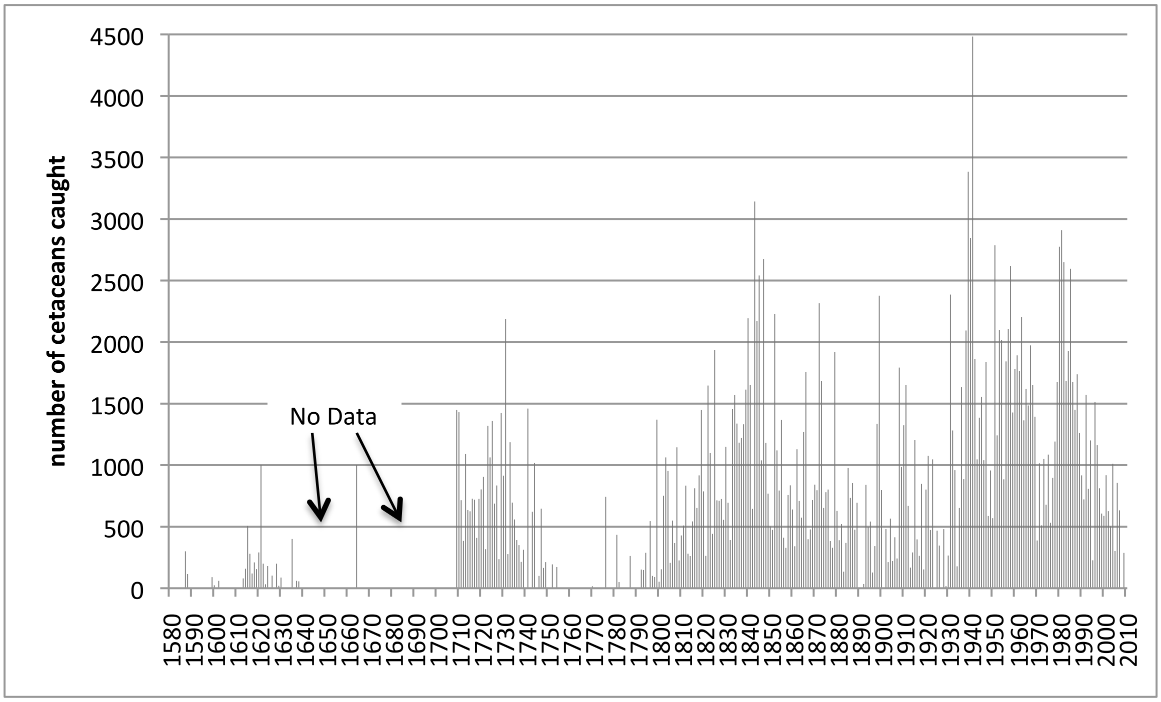


Figure 7.25: Catch statistics for *Globicephala melas* (long-finned pilot whale) in the Faroe Islands, 1587-2009. Total = 258,063. Annual average (1709-2009) = 838.32. Source: National Whaling Statistics, Føroya Náttúrugripasavn.

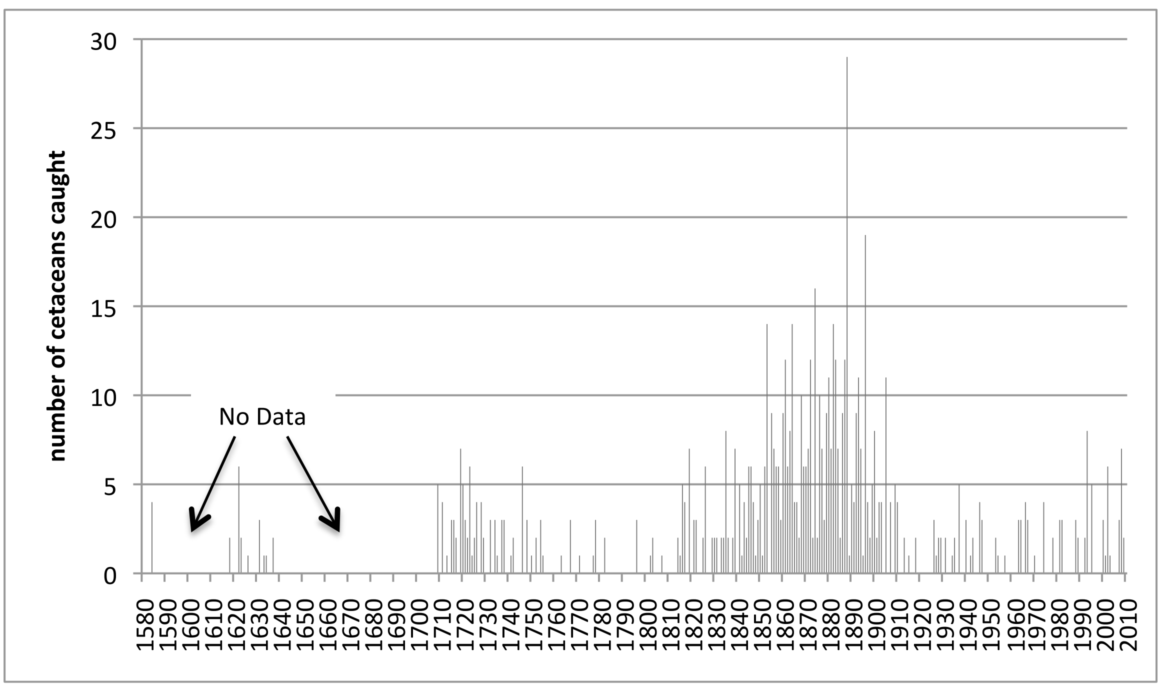


Figure 7.26: Catch statistics for *Hyperoodon ampullatus* (northern bottlenose whale) in the Faroe Islands, 1584-2009. Total = 748. Annual average (1709-2009) = 2.41. Source: National Whaling Statistics, Føroya Náttúrugripasavn.

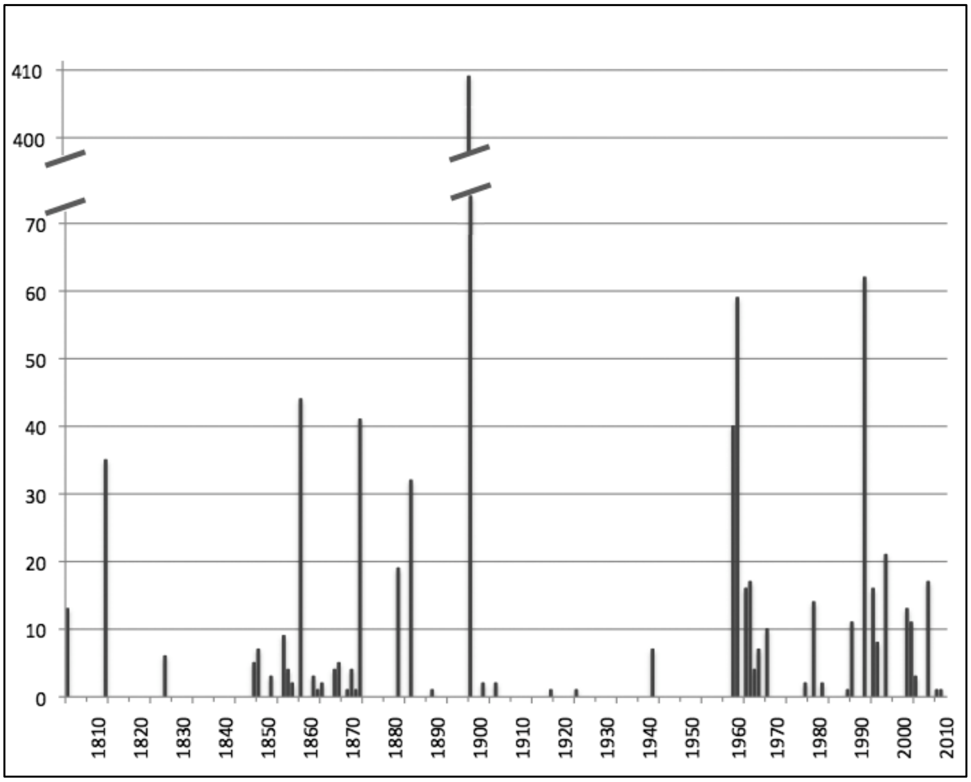


Figure 7.27: Catch statistics for *Tursiops truncatus* (bottlenose dolphin) in the Faroe Islands, 1803-2009. Total = 1,000. Annual average = 4.83. Note broken y-axis for outlier. Source: National Whaling Statistics, Føroya Náttúrugripasavn.

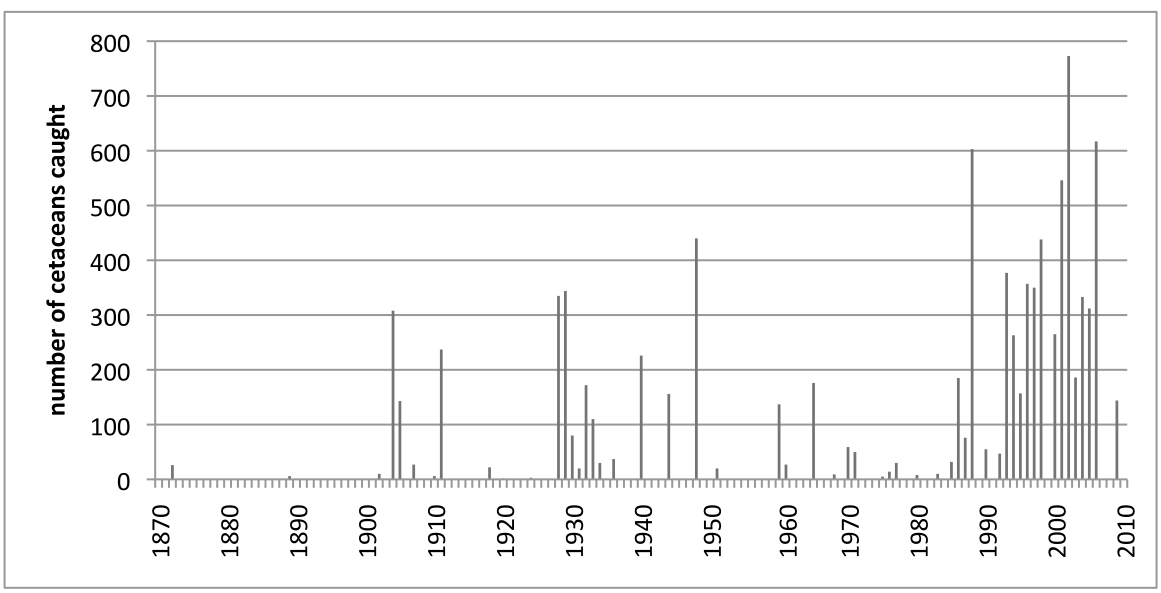


Figure 7.28: Catch statistics for *Lagenorhynchus acutus* (Atlantic white-sided dolphin) in the Faroe Islands, 1872-2009. Total = 9,403. Annual average = 68.14. Source: National Whaling Statistics, Føroya Náttúrugripasavn.

Several researchers have examined the long-term cyclical nature of the grindadráp (Joensen and Zachariassen 1982; Hoydal 1986; Bloch et al. 1990b). Periodicity of the grindadráp is estimated to occur at just over a century (Joensen and Zachariassen 1982; Bloch et al. 1990b). At the end of 2009, the occurrence of grindadráp currently seemed to be on the decline, most notably in local perception because 2008 passed without any pilot whales at all.

Northern bottlenose whales are not actively driven ashore, as are the other cetacean species in the Faroes, rather, they occasionally strand in small groups on the island of Suðuroy and are taken for food. Two or three bottlenose whales, on average, strand each year on Suðuroy. However, the nineteenth century saw an increase in both the frequency of the strandings and the number of individual whales involved.

Bottlenose dolphins are often taken by being driven ashore along with a pod of pilot whales or other dolphins. Most grindadráp do not involve bottlenose dolphins; indeed, very few are taken annually, on average. In 1898, however, over 400 bottlenose dolphins were driven ashore in two separate drives. This year stands out in the records of bottlenose dolphin catches at two orders of magnitude greater than the long-term annual average.

Finally, drives of Atlantic white-sided dolphins have been increasing in occurrence since the late 1980s. Some Faroese prefer the taste of the meat from these dolphins to that of pilot whale meat. However, owing to their small size, dolphins provide a quantity of meat that is considerably less than that which can be gotten from an equal number of pilot whales.

Pilot whales form the mainstay of the artisanal whaling operation in the Faroe Islands, with the three other cetacean species playing supplementary roles (Figure 7.29). Since the late 1980s, however, these other species have comprised an increasing percentage of the total catch. Periods of increased reliance upon species other than the pilot whale are not without precedence, however. Other species made up significant percentages of the annual catch throughout the late 1890s, 1900s, and 1920s. The antiquity of the Faroese whaling records serves to temper potential worries about the changing nature of the catch.

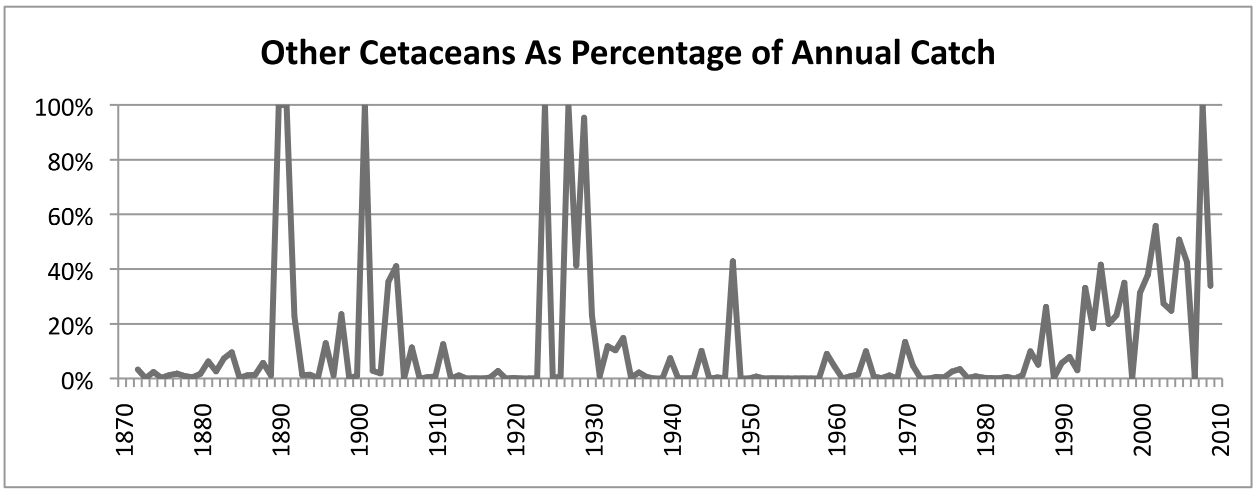


Figure 7.29: Percentage of annual Faroese cetacean catch made up of species other than pilot whales (i.e. *Lagenorhynchus acutus*, *Hyperoodon ampullatus*, and *Tursiops truncatus*), 1872-2009. Source: National Whaling Statistics, Føroya Náttúrugripasavn.

<u>Time-to-death</u>

The time that it takes for an animal to die when it is slaughtered is one of the most widely used measures of humane killing methods for many animal species (Burt 2006; Grandin and Deesing 2008), including whales (IWC 1980; Bowles and Lonsdale 1994; WDCS and HSUS 2003; Kalland 2009). Unsurprisingly then, one of the major criticisms of whaling is that the time that it takes for a whale to die after first being struck by a harpoon is excessive. According to a leading animal rights advocate, “from an ethical perspective, the most blatantly insupportable aspect of whaling is the slow and painful death inflicted upon the whales” (Singer 1978, 9 [cited in Sanderson 1992, 2]). For the purpose of research into the humaneness of killing methods, "slow" generally equals "painful." Thus, at least from the point of view of Western science, a quicker death is generally seen as a better death (for non-Western views on proper killing methods for whales, see Marker 2006 and Sakakibara 2009).

St. Vincent

While observing whaling activities in St. Vincent, I measured the time-to-death for twenty-two dolphins (seventeen *Stenella longirostris* and five *S. frontalis*), taking as a starting point the first harpoon strike. Determining the exact time of death is difficult in the conditions of the field, especially given the atmosphere onboard a whaling boat—rolling waves; quick movements all around; the occasional need to stop everything and help haul, bail, or pass equipment; and several captured dolphins still alive in the hold of the boat simultaneously. Given these difficulties, I did not include in my analysis time-to-death data for any dolphin for which the time of the first harpoon strike or the time of death was uncertain.

Of the twenty-two dolphins for which time-to-death was measured (Table 7.4), one (#22 below) died almost immediately upon being struck by the first harpoon. This was probably due to the rupture of a vital organ or the spinal cord, considering the location of the harpoon strike (dorsal side of the upper thorax). At the other extreme, one unfortunate dolphin (#6 below), after being struck, remained alive for the remainder of the voyage and was dispatched on the dock with a knife behind the blowhole. After dropping these outliers from the data, the average time-to-death was 6 minutes, 57 seconds. If the outliers are included, the average is 9 minutes, 34 seconds (Figure 7.30).

Table 7.4: Time-to-death data recorded for 22 cetaceans caught by St. Vincent whalers.

ID#	Species	Time-to-death (MM:SS)
1	*Stenella longirostris*	1:40
2	*Stenella longirostris*	3:47
3	*Stenella longirostris*	7:38
4	*Stenella longirostris*	13:21
5	*Stenella longirostris*	16:00
6	*Stenella longirostris*	71:17
7	*Stenella longirostris*	4:35
8	*Stenella frontalis*	8:26
9	*Stenella frontalis*	3:20
10	*Stenella frontalis*	2:38
11	*Stenella frontalis*	8:59
12	*Stenella frontalis*	6:55
13	*Stenella longirostris*	2:15
14	*Stenella longirostris*	7:37
15	*Stenella longirostris*	4:18
16	*Stenella longirostris*	5:49
17	*Stenella longirostris*	9:05
18	*Stenella longirostris*	14:47
19	*Stenella longirostris*	14:37
20	*Stenella longirostris*	1:58
21	*Stenella longirostris*	1:23
22	*Stenella longirostris*	0:00

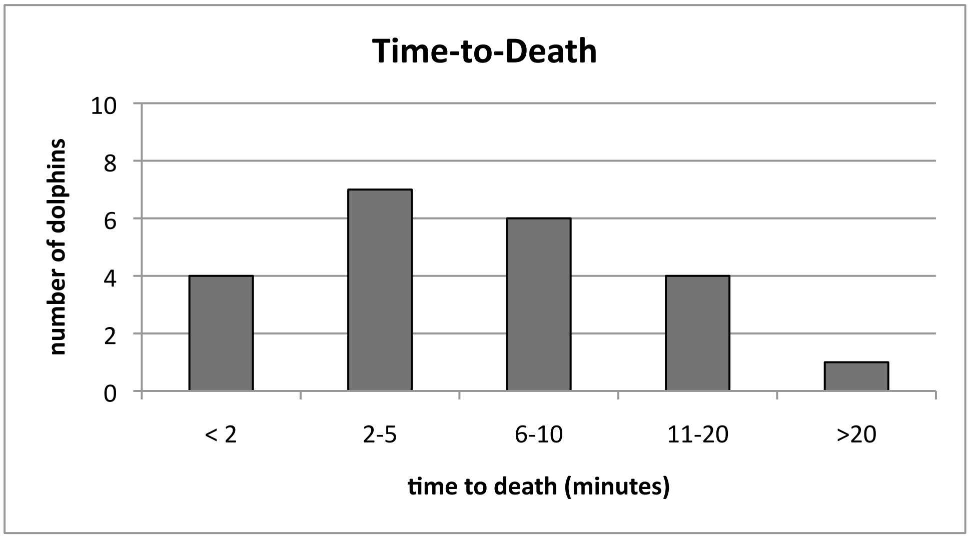


Figure 7.30: Time-to-death measured for 22 dolphins killed by St. Vincent whalers in 2009.

While time-to-death is an important datum to researchers, conservationists, and anti-whaling activists, whalers in St. Vincent seem to take no consideration of it. While the whalers are aware of certain techniques by which they can kill dolphins and whales quickly, decisions regarding the application of these techniques seems to be based solely on whether a live dolphin or whale will be more difficult to transport than a dead one. There also appears to be a preference among the vendors for the meat of a cetacean that is delivered alive, or very recently dead. This meat is often deemed superior to that of a cetacean that has died earlier in the day. This preference can have financial implications to whalers: they believe that they may be paid more for dolphins that are not killed immediately but left alive throughout most of the day's voyage. While most cetaceans die long before the boat returns to Barrouallie, this belief can often influence the whalers to avoid intentionally killing the cetaceans so that their meat might be as fresh as possible upon arrival for wholesale.

Faroe Islands

Compared to Vincentian whaling, the Faroese grindadráp is more complicated, that is, there are more steps in the process of killing the whales and more individual whales being killed at once. Within published scholarship, two methods of measuring time-to-death have been used in the Faroese context. The first is to measure the duration of the entire grindadráp from the killing of the first whale to the killing of the last. This method is based upon the whale pod as a fundamental unit. The second method is to measure the time-to-death for each whale; the fundamental unit in this case is the individual cetacean.

Bloch and collegues (1990a), following the first method, present data recorded at foty-three grindadráp over a two-year period from July 1986 to July 1988. Included in these data are records for each grindadráp of the number of whales killed, the number of people involved (both on shore and in boats), and the total elapsed time from the killing of the first whale to the killing of the last. These data are more useful in determining trends of time-to-death than are the various anecdotal accounts of single grindadráp witnessed by observers from environmental organizations (e.g. Glover 1981; Gibson et al. 1987; Bowles and Lonsdale 1994).

The average number of whales killed in a grindadráp according to Bloch's dataset is 84.6 (Bloch et al. 1990a). This is less than the long-term (1587-2009) average of 136.9 whales per grindadráp. The average time from the killing of the first whale to the killing of the last is 28.4 minutes (after correcting an arithmetic error in the original). The average time-to-death per whale is calculated at 29.5 seconds. This represents only a theoretical average based upon a division of the total amount of time taken to kill all the whales by the number of whales killed; in reality many whales are killed simultaneously by different teams of whalers.

From Bloch's dataset (1990a) there appears to be no connection between the duration of the grindadráp and the number of whales killed (Figure 7.31) or the number of whalers participating (Figure 7.32). The grindadráp that took the longest to complete (2.5 hours) involved 139 whales—more than the average for Bloch's dataset but far from the maximum. Indeed, the largest grindadráp, in terms of the number of whales (225), took only 35 minutes to complete the killing.

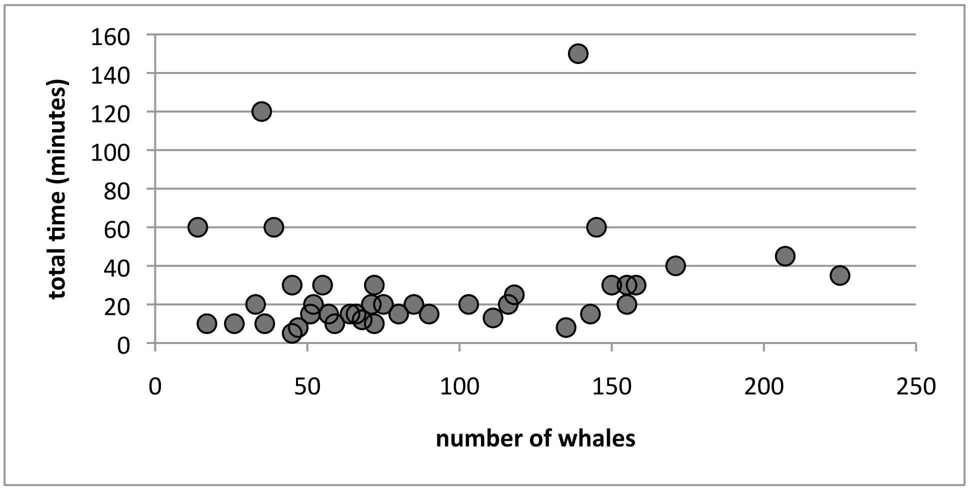


Figure 7.31: Number of whales killed in each grindadráp plotted against duration of the grindadráp. Each circle represents one grindadráp. Source: Bloch et al. 1990a.

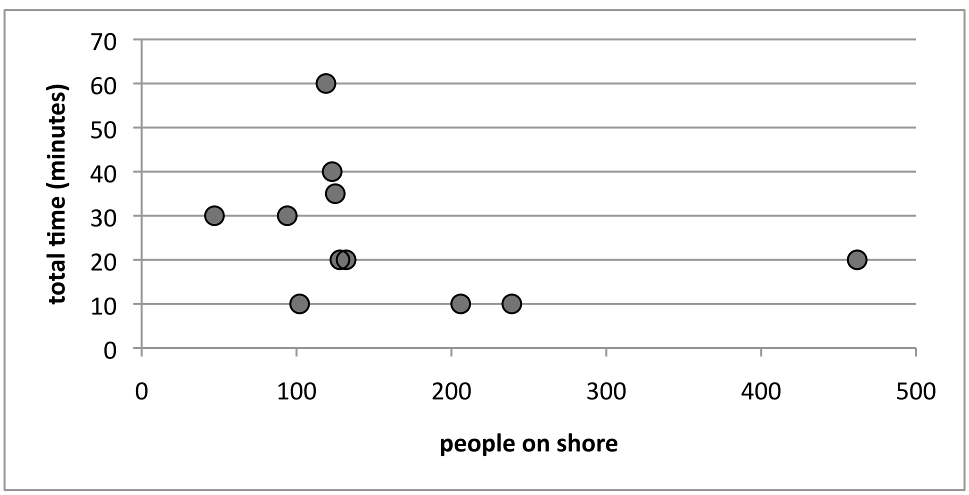


Figure 7.32: Number of people involved in each grindadráp plotted against duration of the grindadráp. Each circle represents one grindadráp. Source: Bloch et al. 1990a.

The only variable within Bloch's dataset that may have an effect on the duration of the grindadráp is the ratio of people to whales. Even with the interference of two outliers, Bloch's records do show a decrease in the total time of the grindadráp as the ratio of men to whales moves from 1:2 to 4:1 (Figure 7.33). This trend points to the value of collaboration and communality and supports the view that grindadráp are indeed community events that rely upon the work of many whalers joining together.

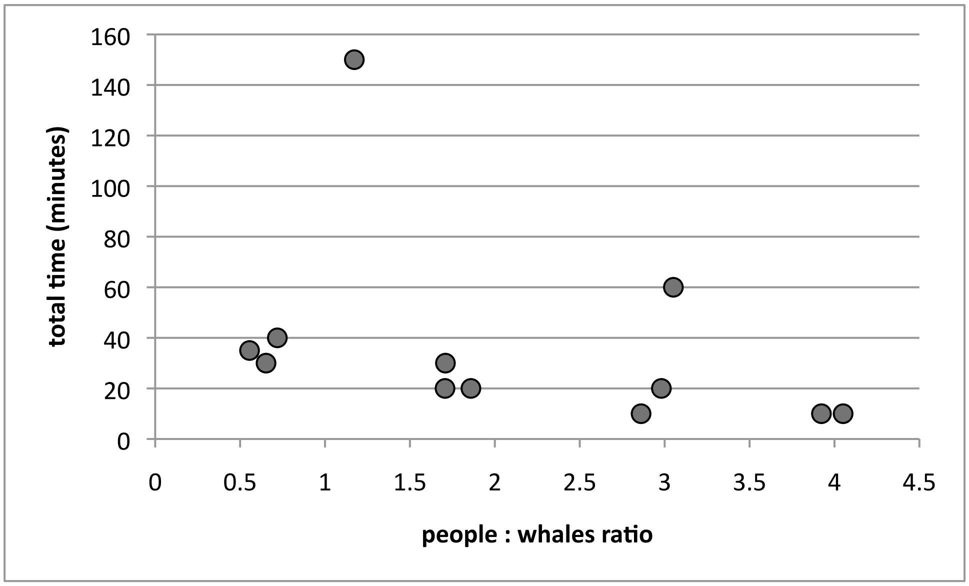


Figure 7.33: Ratio of people to whales involved in each grindadráp plotted against duration of the grindadráp. Each circle represents one grindadráp. Source: Bloch et al. 1990a.

Jústines Olsen (1999), the Faroese veterinarian and inventor of the mønustingari, or spinal cord knife, has examined both the duration of entire grindadráp and time-to-death of individual whales. Olsen measured times-to-death for 251 individual pilot whales killed in forty-seven grindadráp occurring between 1995 and 1998. He divided his time-to-death data into two phases. The first phase begins at the moment the whale is secured with the hook and ends with the first incision by the grindaknívur. The second phase begins with the grindaknívur incision and ends when the whale, having had its spinal cord severed and the blood supply to its brain interrupted, is dead, as evidenced by "immediate and violent muscle spasms, followed by total paralysis" (Olsen 1999, 8).

The way in which these two stages are used to determine total time-to-death has fostered some criticism of Olsen's methods. Distinguishing based upon which style of hook had been used, Olsen (1999, 8) stated regarding his method that

> [w]hen the traditional whaling hook [the sharp hook, or sóknarongul] is used to secure the whale, the total time-to-death is the sum of the first and second phases. When the blowhole hook [blástrarongul] is used, the total time-to-death is the second phase only... as the whales are not wounded with the blowhole hook.

According to a booklet published jointly by the Whale and Dolphin Conservation Society and the Humane Society of the United States (2003), critical of Olsen's methodology,

> The new gaff [blástrarongul] causes no external bleeding and consequently, as it is presumed no wounding results from the insertion of this device into the blowhole, hunters may not count this as the starting point for measuring Time-to-death. However, the blunt ended gaff may cause internal wounding, such as damaging the complex organs and tissue that lie below the blowhole (a particularly sensitive region in cetaceans) and burst blood vessels. It may also prevent the whale from breathing properly.

Nevertheless, Olsen maintains that the time-to-death should not begin with the application of the blástrarongul. Inside the blowhole, according to Olsen (1999, 5), the "blubber is very tough and fibrous and will withstand considerable pressure." Noting this disagreement over Olsen's methods, but lacking a dataset that is superior and unproblematic, I present the calculations of measured times-to-death following Olsen's method of differentiation according to the use of the blástrarongul or sóknarongul separately (Table 7.5).

Table 7.5: Time-to-death, in seconds, of 251 pilot whales (199 secured with the sóknarongul and 52 secured with the blástrarongul), measured as described above. Source: Olsen 1999.

	Stage 1 (sóknarongul)	Stage 2 (knife)	Total
Minimum	0.0	3.5	8.0
Maximum	132.0	195.0	290
Average	29.3	36.1	65.4
	Stage 1 (blástrarongul)	**Stage 2 (knife)**	**Total**
Minimum	3.0	6.0	6.0
Maximum	90.0	211.0	211.0
Average	20.1	29.2	29.2

Second I present Olsen's results on the duration of each of the forty-seven grindadráp occurring during his study period, combined with the duration of each of the forty-three grindadráp from Bloch and colleagues' (1990a) study period (Figure 7.34).

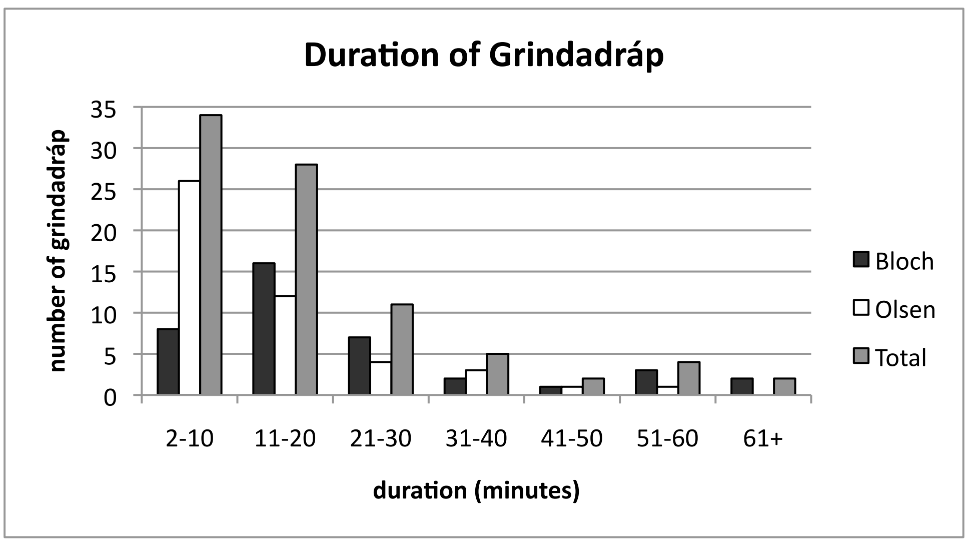


Figure 7.34: Duration of 43 grindadráp occurring between 1986 and 1988 ("Bloch") and forty-seven grindadráp occurring between 1995 and 1998 ("Olsen"). ***Duration*** **is defined as the time elapsed from the when the killing of the first whale begins to when the killing of the last whale is complete. Total number of grindadráp included in this comparison is ninety. Sources: Bloch et al. 1990a; Olsen 1999.**

By analyzing the combined data from these two studies, we find that the largest percentage (forty percent) of grindadráp were completed in ten minutes or less. The vast majority (seventy-seven percent) lasted less than 20 minutes. Only nine percent lasted longer than 30 minutes.

Economic Analysis

In both locations, whaling is an economic activity. This is perhaps more obvious in St. Vincent, where certain men and women specialize as whalers and vendors, make initial investments in training and equipment, and conduct their business for profit. In the Faroe Islands, the economic value of whaling is not as clear because it does not usually involve monetary transactions or professional whalers and vendors. However, as a guide published by the Faroese Prime Minister's Office points out, "the economic value of pilot whales is measured against the economic value and environmental costs of importing the same amount of food" (Løgmansskrivstovan 2002, 13). This section presents results from an analysis of the economics of whaling, in St. Vincent and the Faroe Islands.

The section on St. Vincent focuses primarily upon the monetary value of whaling to those engaged in the occupation as whalers and vendors. It draws heavily upon the records of Samuel Hazelwood. In the Faroe Islands, since the abandonment of the grindadráp is a real possibility, given the advice of the top health officials (Weihe and Joensen 2008), the section on Faroese whaling economics focuses primarily upon the economic and environmental costs of replacing whaling within local food production strategies.

St. Vincent

Whaling in St. Vincent is a six- or seven-day per week venture. The boat with which I was most closely associated during my fieldwork, Samuel Hazelwood's *Sea Hunter*, generally sails every day except Sunday. To spend a day whaling is to make a considerable initial investment. The average daily cost of operating the boat is EC$190.49 (US$70.95). This amount is almost entirely made up of the cost for fuel and oil but there are several indirect costs that are not included such as wear-and-tear on the boat and equipment, lost or damaged harpoons, food, and opportunity cost, that is, lost earnings on other work that was not done because the crew chose to go whaling. A day with no catch is a day with no income. Even some days with a catch provide no net income because the wholesale price of the catch does not cover the expense of fuel. Occasionally the whalers will catch enough fish with their handlines to make up for a day in which no cetaceans were caught, but these days are rare.

During the three-year period from January 2007 through December 2009 (1,096 days) for which my records cover, the *Sea Hunter* sailed on 693 days. There were 360 days (fifty-two percent) on which at least one cetacean was caught. However, this is no guarantee of a profit. Particularly if the catch is made up only of a few small dolphins, the net result of the income from the sale of the catch and the cost of the fuel may not be positive. Of the 360 "catch days" (meaning days on which at least one cetacean was caught) within my records, the boat made a profit on 249 days (sixty-nine percent). The boat operated at a loss on 49 of these catch days (thirteen percent) and broke even on 64 days (eighteen percent). When one considers all the days when the boat sailed, whether a catch was made or not, coincidentally there are exactly the same number of days when the boat operated at a loss as when it earned a profit (314 days, forty-five percent each). On 65 days (ten percent) the boat broke even (Table 7.6).

Table 7.6: Whaling days, by profitability and record of at least one cetacean catch, 2007-2009 (n=693).

	Profit	Loss	Even	Total
Catch	248 days (69%)	48 days (13%)	64 days (18%)	360 days (52%)
No Catch	66 days (20%)	266 days (80%)	1 day (<1%)	333 days (48%)
Total	314 days (45%)	314 days (45%)	65 days (10%)	693 days (100%)

Although the number of days on which the whaling boat earned a profit and the number of days on which it operated at a loss are equal, the margins of profits and losses are not. The average daily profit on whaling days for the 2007-2009 period was EC$948 (US$353) and the average daily loss was EC$231 (US$86). Viewed over the course of the three-year record period, by month, it is clear that the business of whaling is profitable in the long term (Figure 7.35). Only one month in each twelve-month period shows a loss.

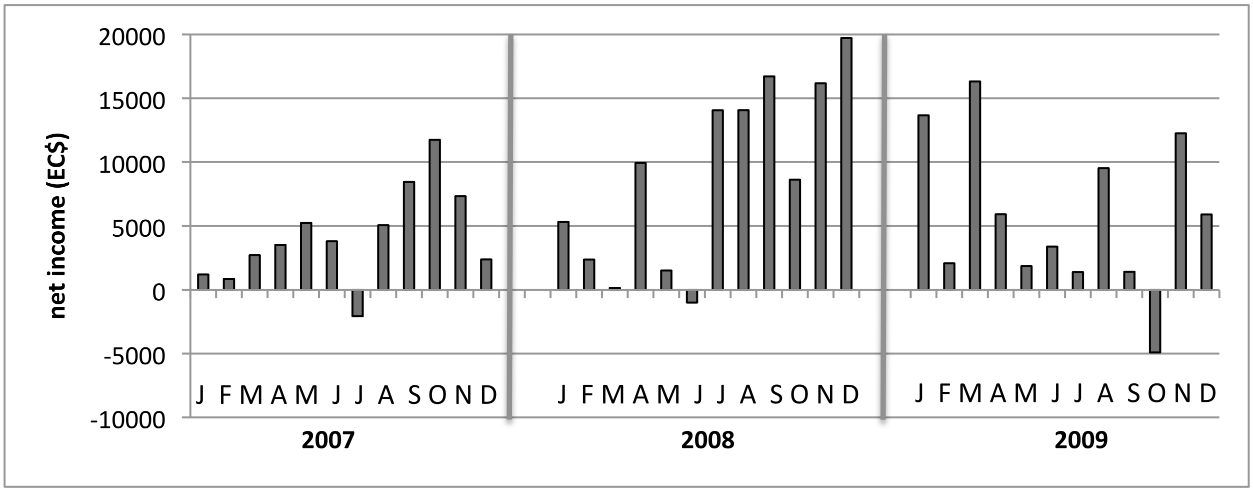


Figure 7.35: Net profit or loss, by month, in Eastern Caribbean Dollars (EC$) for the whaling boat, *Sea Hunter*. Source: Financial Records of Samuel Hazelwood.

Based upon the extrapolation formula of multiplying the available records by 1.5, I can estimate from Samuel Hazelwood's records that the entire pilot whaling industry in St. Vincent earns between EC$75,000 (US$27,933) and EC$160,000 (US$59,590) per year, wholesale (Figure 7.36).

After the vendors have processed the catch into food products, no records are kept of the sales, expenditures, or other financial data involved. Nigel Scott (1995) estimates that the vendors earn more than the whalers, based upon the style and furnishings of the houses that they are able to afford. He acknowledges, though, that "it is extremely difficult to estimate the earnings of blackfish vendors" owing to the lack of financial records available (Scott 1995, 76).

Perhaps a future ethnographic study of the artisanal whaling operation at Barrouallie can focus upon the vendors and the economics of their livelihoods.

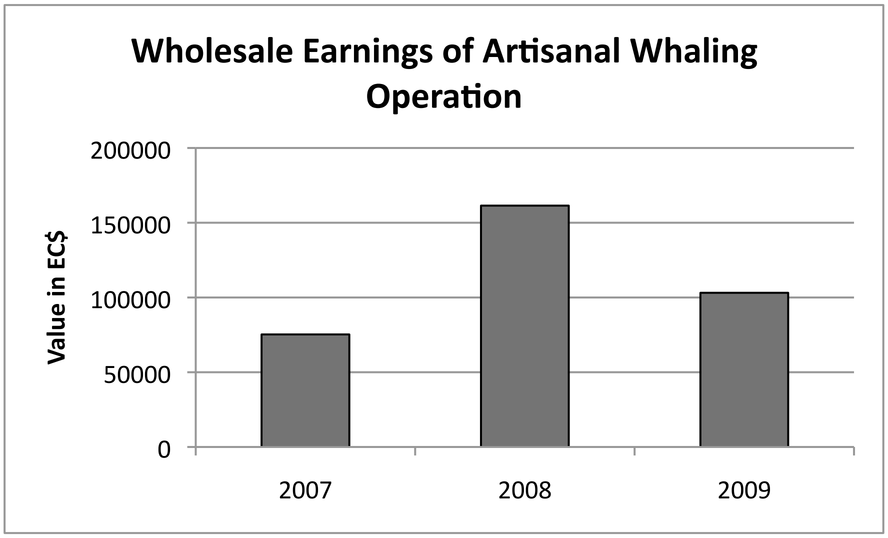


Figure 7.36: Total annual wholesale income of the artisanal whaling operation in St. Vincent, as calculated from the financial records of Samuel Hazelwood.

Faroe Islands

In 2002, the grindadráp was found to supply thirty-percent of the meat produced locally in the Faroe Islands (Løgmansskrivstovan 2002). When one considers the possible cessation of the grindadráp—due to the increased toxicity of the whale meat and blubber—and the gap that its absence would leave in the Faroese food supply, one must consider environmental and economic costs of filling that gap.

Several alternative methods of food production and/or acquisition are currently being discussed in the Faroe Islands. Among these the most prominent in current discourse are an increase of imports, an intensification of local food production, and the shifting of some of the fish that is currently exported to availability for local consumption.

First, regarding imports, the major country trading with the Faroe Islands is Denmark. Although Denmark and the Faroe Islands are not actually separate states, Hagstova Føroya—the Faroese governmental statistics bureau—treats trade with Denmark just like trade with any other foreign country. In 2009, the Faroe Islands imported over DKK 1.5 billion (US$262 million) worth of goods from Denmark (Hagstova Føroya 2010). This amount represents 31.7 percent of the entire value of all imports to the Faroe Islands. In addition to importing from several other European nations, the Faroe Islands also have long-distance trade partners, often importing meat—especially lamb—from as far away as New Zealand (Brandt 1996).

As the costs of food and fuel increase, these import costs will certainly increase as well even if the amount of food imported remains constant. If the Faroe Islands were to increase their imports to fill the gap left by the cessation of the grindadráp, they would also incur higher cost for transportation and would be contributing, through the increased use of fossil fuels, to the same sources of marine pollution that would have led them to abandon the grindadráp in the first place.

Second, with regards to local food production, two Faroese industries present the most potential: the ancient traditions of sheep-raising and haying, established in the Faroe Islands since the time of the first Norse settlement (Joensen 1999; Adderly and Simpson 2005), and the relatively new effort toward aquaculture (Faroe Islands 2008).

When the Norse arrived in the Faroe Islands during the ninth century, they brought primarily sheep, but also some cattle, and established European grazing management practices (Thomson et al. 2005). Their limited numbers and experience working in northern settings led to a system that did not exceed the land's capacity (Edwards 2005b). However, population has increased dramatically since the time of Norse settlement. As population increased, so did the intensity of farming, well into the nineteenth century. In 1865, farming (primarily livestock-raising) was the main occupation in the Faroe Islands, employing some sixty-eight percent of the workforce. In 1996, farming employed only two percent of the workforce, with commercial trades and services making up the largest sector of the economy (Guttesen 1996a).

Livestock management remains a important industry in the Faroe Islands, primarily the raising of sheep for wool and meat. However, although sheep still greatly outnumber human inhabitants, their importance to the Faroese economy is in decline. According to Brandt (1996), mutton and lamb imported from Iceland and New Zealand supplement local production, but cultural preferences allow locally raised meat to sell for a much higher price. Brandt (1996) also suggested that the Faroe Islands could support a larger sheep industry but that cultural acceptance of a shift from traditionally pastoral to industrial sheep-rearing would need to happen first.

If the Faroese are to use their land resources to replace the meat lost by a potential closure of the grindadráp, they will have to reassert livestock as a major industry while maintaining the sustainable practices with which Faroese farming was begun by the original Norse settlers. Brandt (1996) has suggested that the current pattern of land tenure, which has led to a scattering of tiny, irregularly shaped parcels that are incompatible with modern farm machinery, needs to be reformed. Whether the society will accept these changes, and the associated modifications that they would produce in the Faroese landscape, is yet to be seen.

Another industry that may provide an increasing amount of food for local consumption in the Faroe Islands is aquaculture (Faroe Islands 2008). Aquaculture first began in the Faroe Islands in 1966 (Fiskaaling P/F 2010) and increased in intensity throughout the 1990s (Hagstova Føroya 2010). The major species being raised are Atlantic salmon (*Salmo salar*) and rainbow trout (*Oncorhynchus mykiss*). Fisheries scientists are currently experimenting with methods of raising Atlantic cod (*Gadus morhua*) in captivity as well.

Following a precipitous decline beginning in 2003, the Faroese aquaculture industry has increased to near its highest historical level of production (Figure 7.37). The 2003-2006 decline was due in part to economic factors surrounding the industry's management procedures (Zdonko 2004) and also to the escape of hundreds of thousands of fish during storms, an all-too-common occurrence among aquaculture operations in the North Atlantic (Hansen et al. 1999; Walker et al. 2006). While the economic principles behind aquaculture management have undergone review (Faroe Islands 2008), there still remain no regulations for preventing or mitigating future escapes (Naylor et al. 2005).

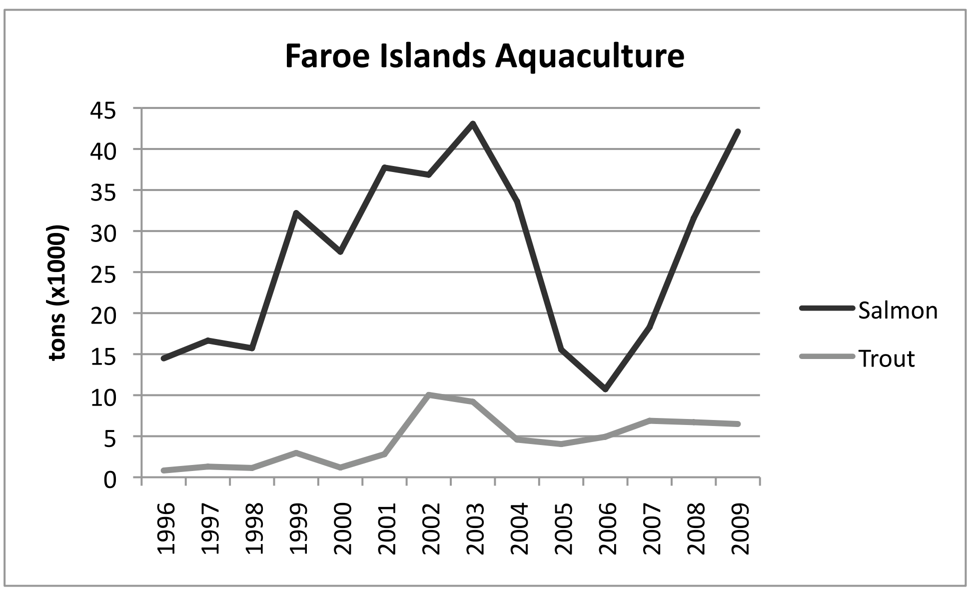


Figure 7.37: Production of Atlantic salmon and rainbow trout in Faroese aquaculture, 1996-2009. Source: Hagstova Føroya 2010.

Third, there is the option to divert some of the commercial fisheries catch from the export market to the local market. Some fish and sea mammals show much higher levels of MeHg and other contaminants than do other species. Pál Weihe of the Faroese Hospital

System states that the difference in MeHg concentration between cod and pilot whale meat is such that, "for every portion of whale you could eat 100 portions of cod" (personal communication). He advocates replacing whale meat in the Faroese diet with fish caught by the Faroese fishing fleet.

In 2009 the Faroe Islands exported over DKK 3.6 billion (US$603 million) of fish, which comprised over eighty-nine percent of the value of all Faroese exports (Hagstova Føroya 2010). Perhaps some of these exports could be kept at home for local consumption. A shift from foreign to local markets for a portion of the Faroese fish catch would provide locally produced food that is high in protein and fatty acids (as are cetacean meat and blubber) but low in MeHg and other contaminants, and would not incur the environmental or economic cost of transporting the products from Europe or beyond. Nor would the limited amount of available land be taxed by intensified usage in the farming and livestock industries. The Faroese economy would be affected by the loss of a portion of foreign trade and export power, but if the fish were sold in Faroese markets, the local economy would also be stimulated by the addition of a cash commodity in place of a non-commercial meat source. The economic impact would then be transferred to the individuals who buy the fish in place of the whale meat that they had formerly received at no cost.

Spatial Analysis

St. Vincent

The goal of applying spatial analysis methods to the research in St. Vincent is to determine where whales and dolphins are most frequently sighted and caught, the areal distribution of whaling efficiency, and the role of the physical oceanographic environment in whaling. Using a combination of GPS data that I collected while aboard the whaling boats and publicly available GIS bathymetry data, I present the following spatial analysis of Vincentian whaling activities.

Figure 7.38 presents a basic chart depicting the sighting locations of seven species that are hunted by Vincentian whalers, as well as the locations of dolphins whose species could not be identified. There is no spatial pattern to species sightings evident from this chart.

Figure 7.39 does not address the species of sighted cetaceans, rather their spatiality. I overlaid a grid layer with squares covering 0.05 degree^2 to the area of the ocean in which all charted whaling courses took place. This size was chosen because it allowed for areal analysis appropriate to the size of the dataset. From this chart it is evident that certain areas are the location of considerably more sightings than others.

Figure 7.40 expands upon this information by quantifying the percentage of whaling courses taking place within each unit area of the grid. This percentage is represented by shade. The percentage of cetacean sightings occurring in each square is represented numerically.

Figure 7.41 completes the analysis of whaling efficiency by quantifying the calculated efficiency for each unit area of the grid. This value is obtained by dividing the percentage of cetacean sightings in each unit by the percentage of whaling courses recorded in that unit. Analysis of this chart reveals that some heavily traveled units are quite inefficient, especially toward the center of the most often whaled area. An optimal strategy for the whalers would be to concentrate their efforts in areas where whaling efficiency is highest.

Figure 7.42 introduces bathymetric data to examine the influence of the physical environment on the efficiency of whaling in certain areas off the coast of St. Vincent.

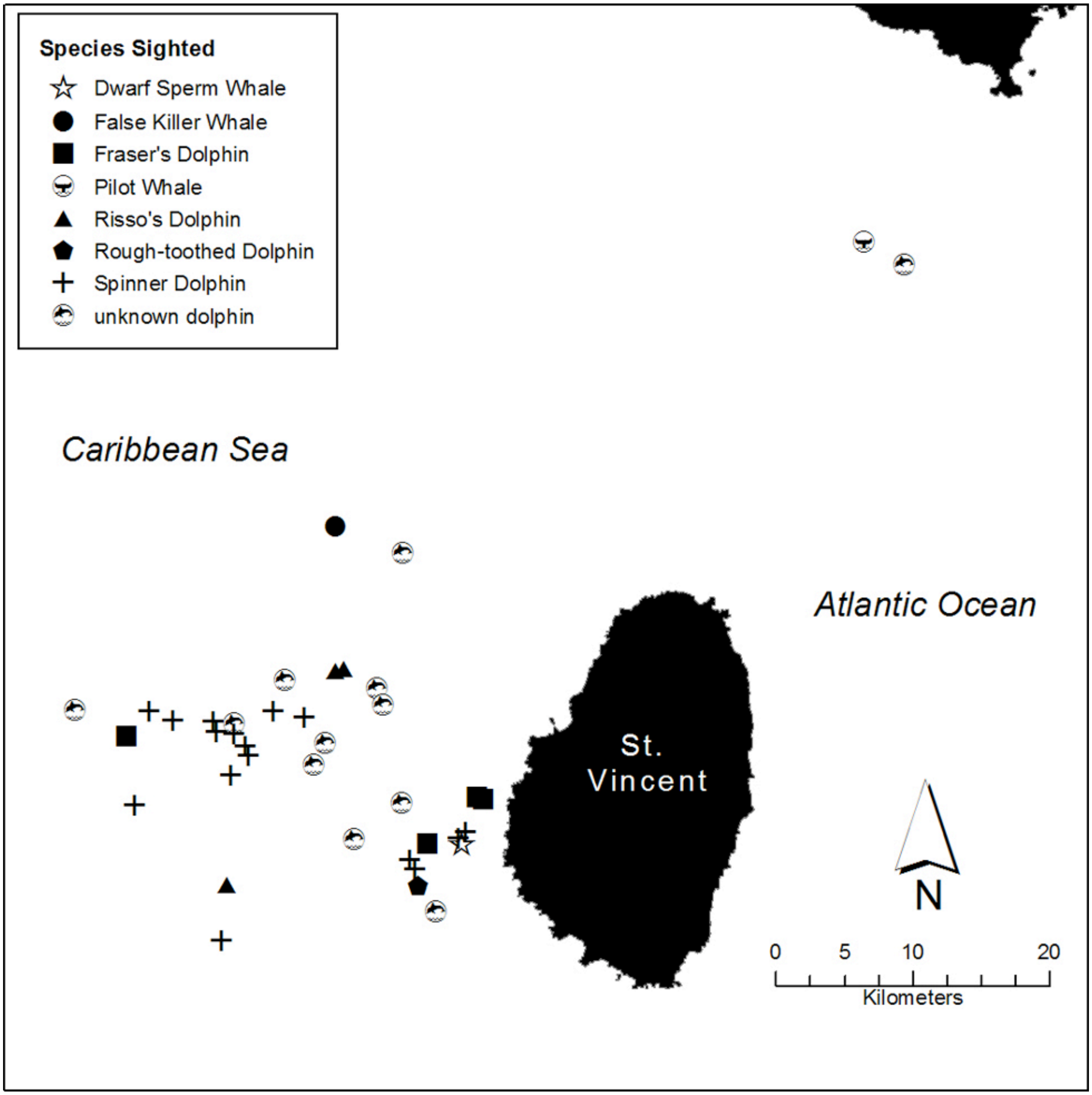


Figure 7.38: Locations of cetacean sightings. Only species that are hunted have been marked. In most cases, a large pod was sighted, rather than a solitary animal.

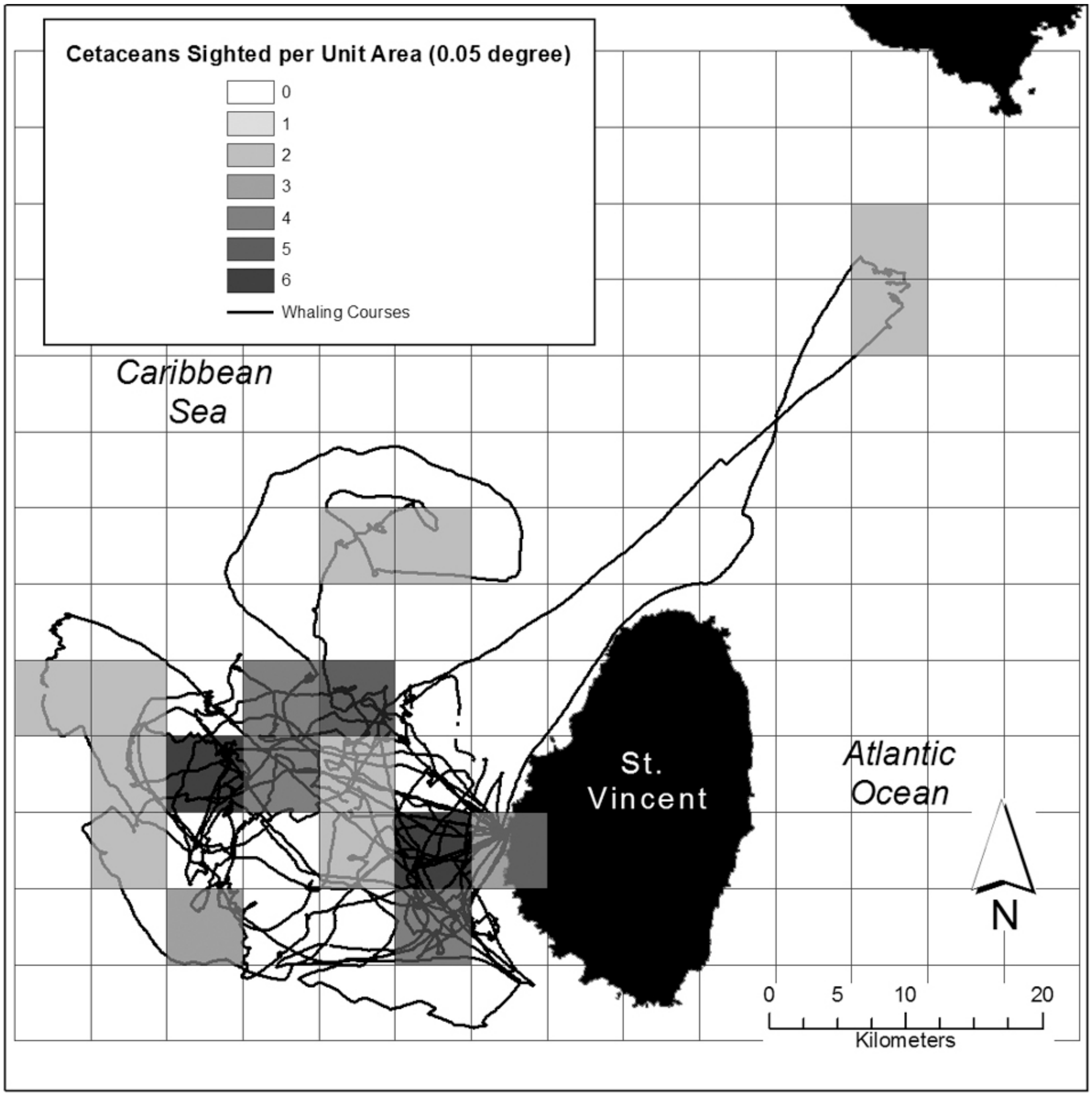


Figure 7.39: Whaling courses and density of cetacean sightings, using a grid with areas of 0.05 decimal degree^2.

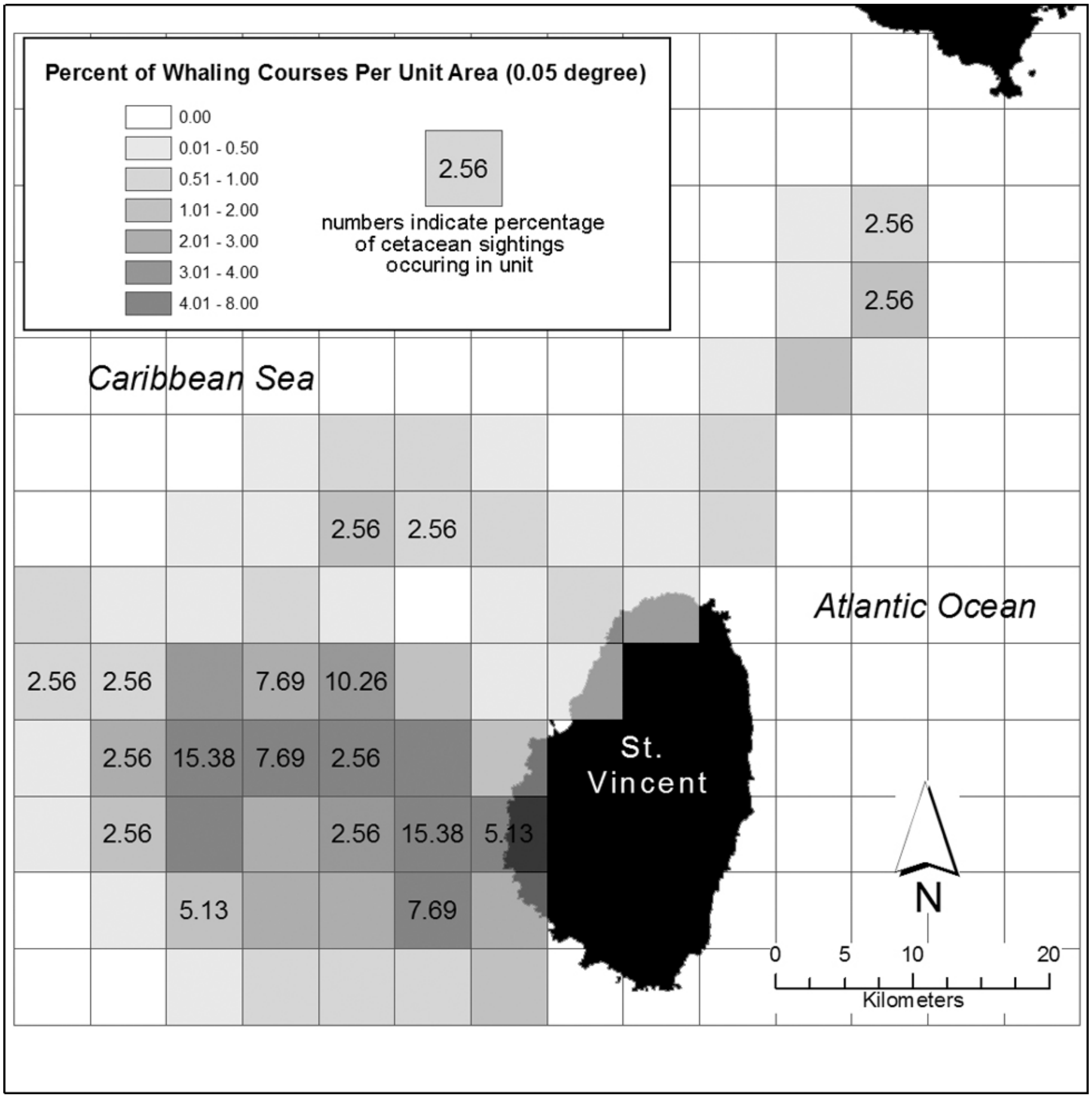


Figure 7.40: Percentage of whaling voyages and percentage of cetacean sightings in a grid with boxes measuring 0.05 decimal degree^2.

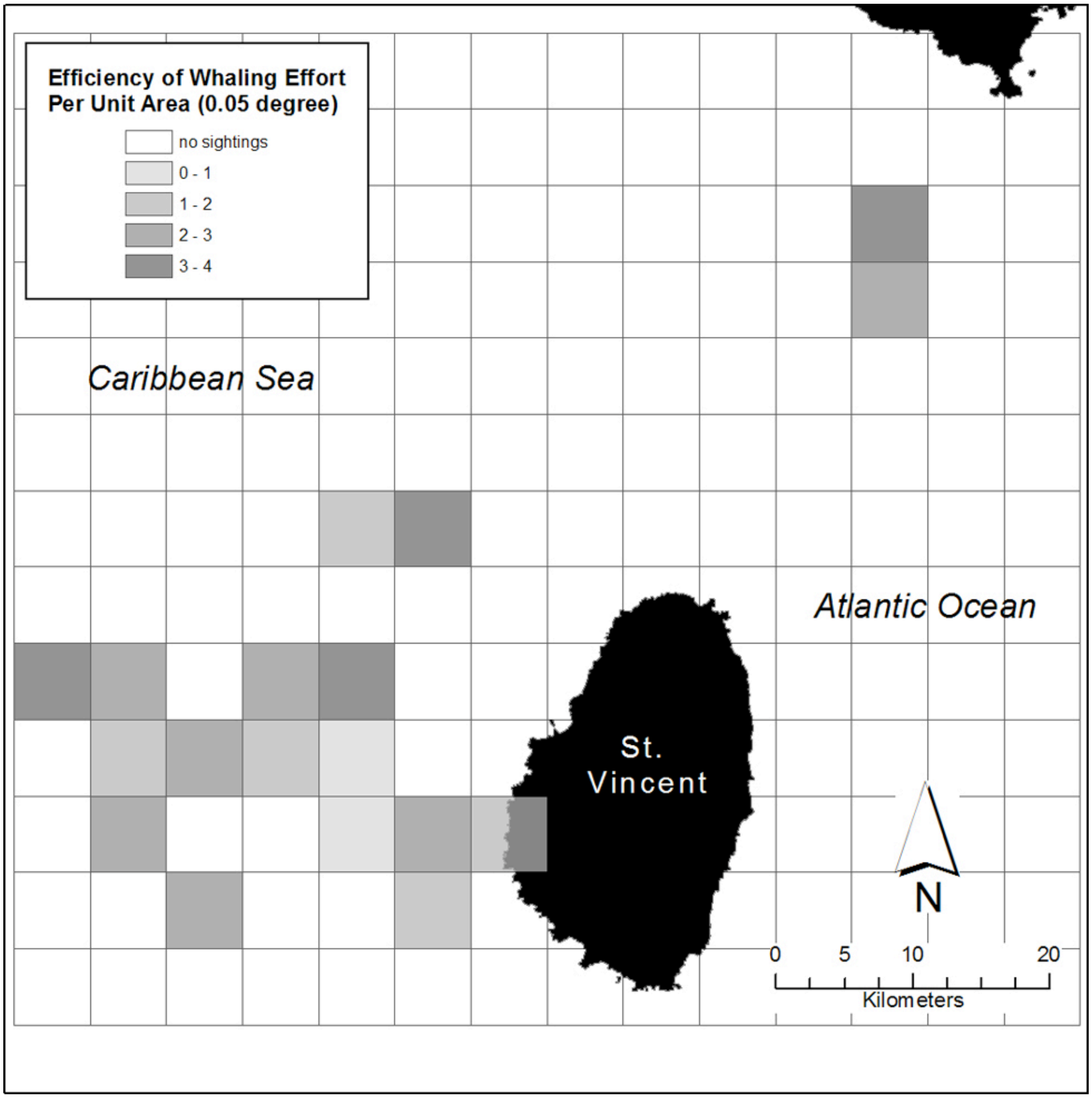


Figure 7.41: Efficiency of whaling effort per unit area. Darker grid units represent areas of more efficient whaling. Only units in which cetaceans were sighted are shaded.

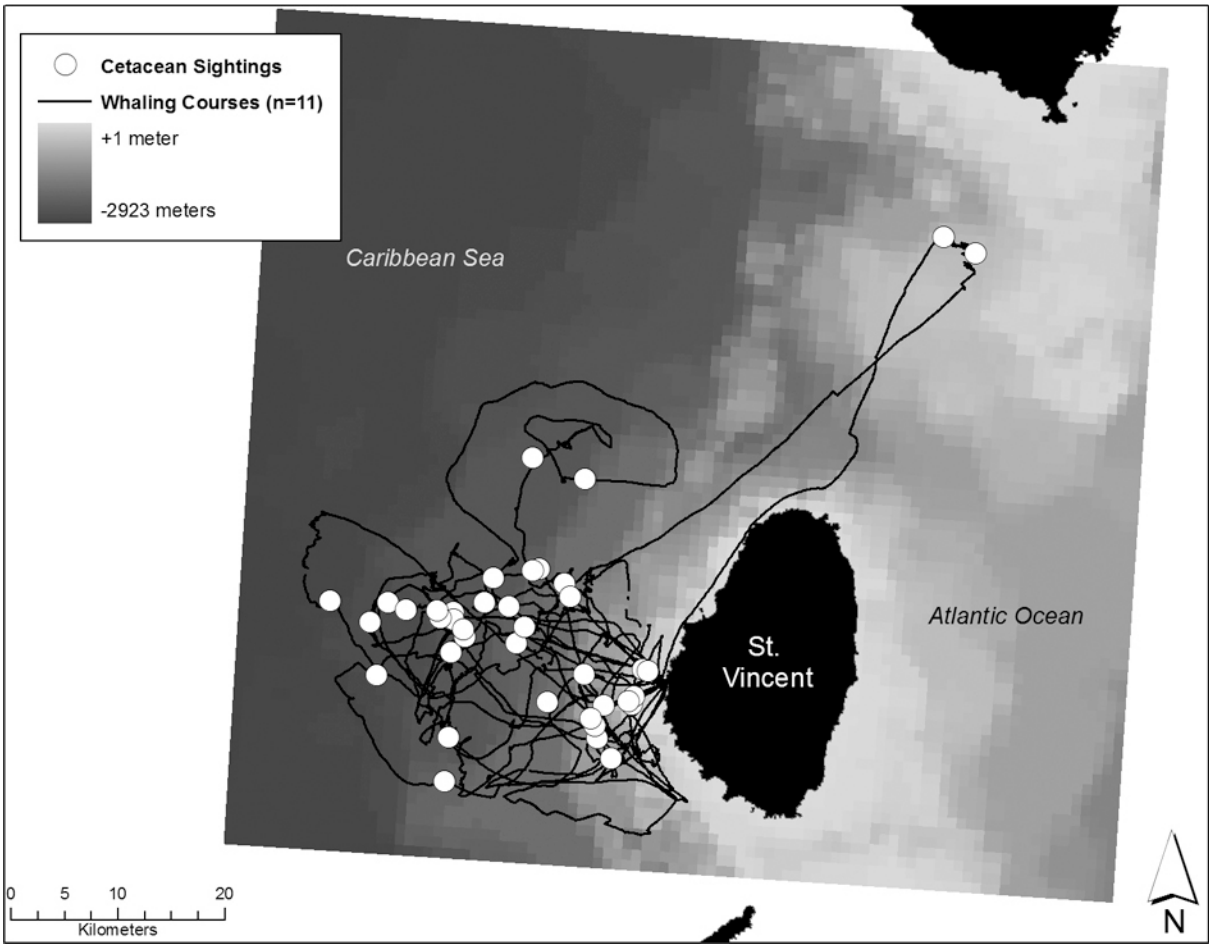


Figure 7.42: Ocean bathymetry data with whaling GPS data overlaid.

St. Vincent and St. Lucia are both relatively large islands, part of the same volcanic arc. Between these islands lies a relatively shallow (generally less than 600 meters [1969 feet]) channel known as the St. Vincent Passage. The currents within the passage, which are strong and almost always flow from the east, form large eddies on the leeward side of the islands—cyclonic to the south of the passage and anticyclonic to the north (Heburn et al. 1982). Ingham and Mahnken (1966) found these eddies to be areas of high primary productivity as evidenced by high concentrations of plankton and the presence of many fish and seabirds. Vincentian whalers often look for seabirds as indicators of where cetaceans might be found. The eddies that form when the water that was forced through the narrow St. Vincent Passage is relieved of its pressure are often where species of many trophic levels—from plankton to whales—can be found. However, these eddies also produce turbulent seas and the whalers will often direct their efforts in areas more fully within the lee of St. Vincent not only for safety but because it can be very difficult to aim the harpoon gun in heavy seas.

To the leeward side of St. Vincent, the undersea topography declines very steeply into the Grenada Basin. Within 30 kilometers [18.6 miles] from the west coast of the island, whalers find themselves in water over 3,000 meters (9,843 feet) deep. If the productive, yet turbulent waters of the St. Vincent Passage and the eddies that it produces are too rough for the whalers to hunt safely and effectively, they will often head for the deep, calm waters directly west of Barrouallie.

During my participatory fieldwork, I recorded the locations of forty cetacean sightings. Most of these sightings involved large pods rather than solitary dolphins or whales. Within the GIS, it is possible to determine the exact depth of the water at the location of each sighting, represented by the circles on the chart above. While the cetaceans themselves were all caught at the surface, the depth of the water is vital to their movement patterns because it strongly influences the concentrations of the fish and squid upon which the cetaceans prey.

As Figure 7.43 shows, the majority of cetacean sightings took place in water that was between 2,000 and 2,500 meters (6,562-8,202 feet) in depth. The average depth of all the points where cetaceans were sighted is 1,828.45 meters (5,999 feet). Although, the one recorded foray into the shallower, more turbid waters of the St. Vincent Passage did result in the sighting of two pods of cetaceans—one of dolphins and one of pilot whales—in waters between 500 and 600 meters (1,640-1,968 feet) deep.

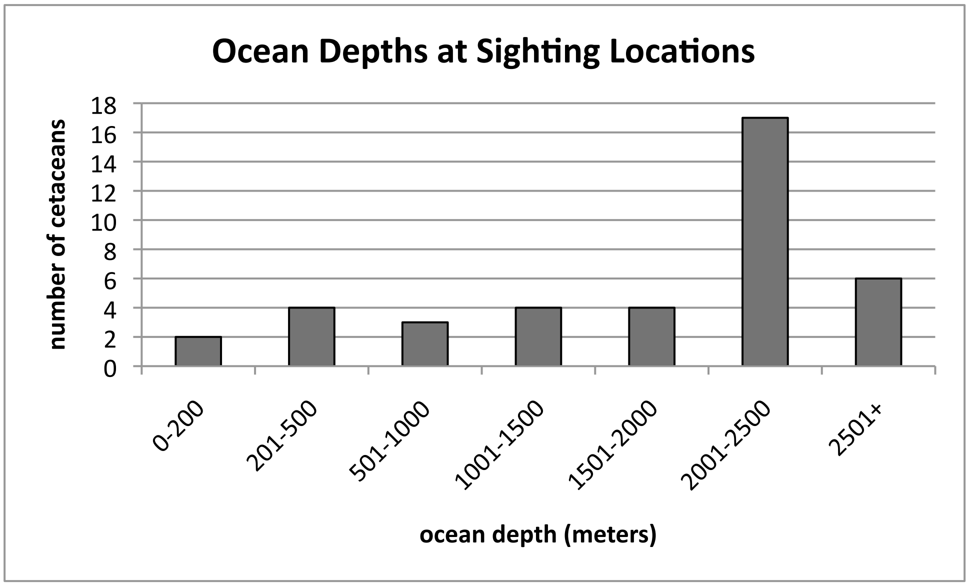


Figure 7.43: Number of cetaceans sighted in locations of various depths (n=40).

When we consider the method used to record the cetacean sightings—the marking of waypoints from a boat-based GPS—the question of accuracy arises. At times, I marked the location of a pod that was still many meters from the boat, dolphins or whales that the whalers pursued but never approached closely enough to attempt to harpoon. At other times, I marked the pod's location when hundreds of dolphins were literally surrounding the boat. Because of the discrepancies in the locations of the subjects being georeferenced, and to avoid the interference of small aberrations in the general undersea topography, it is appropriate to examine not only the point locations where cetaceans were sighted but also the bathymetric conditions in the general vicinities of the sightings. For this, we return to the 0.5 degree^2 grid used above to analyze whaling efficiency (Figure 7.44). By calculating the average depth of each grid unit in which cetaceans were sighted, we obtain a more general idea of the bathymetric conditions of the places that these whales and dolphins inhabit (Figure 7.45).

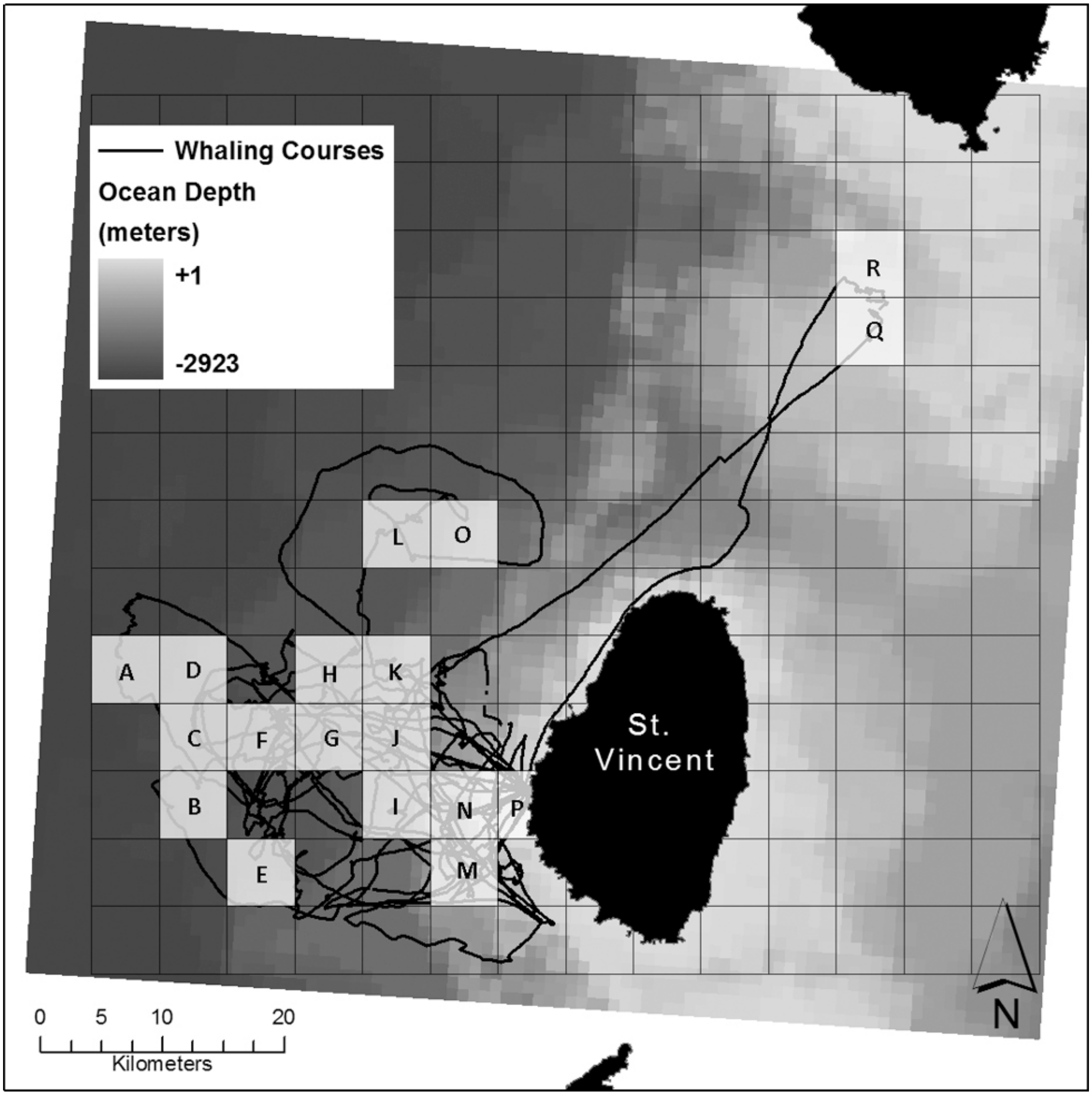


Figure 7.44: Ocean bathymetry data grid analysis of cetacean sightings overlaid. Grid units in which at least one cetacean sighting occurred are marked. Letters correspond to data presented in Figure 7.45.

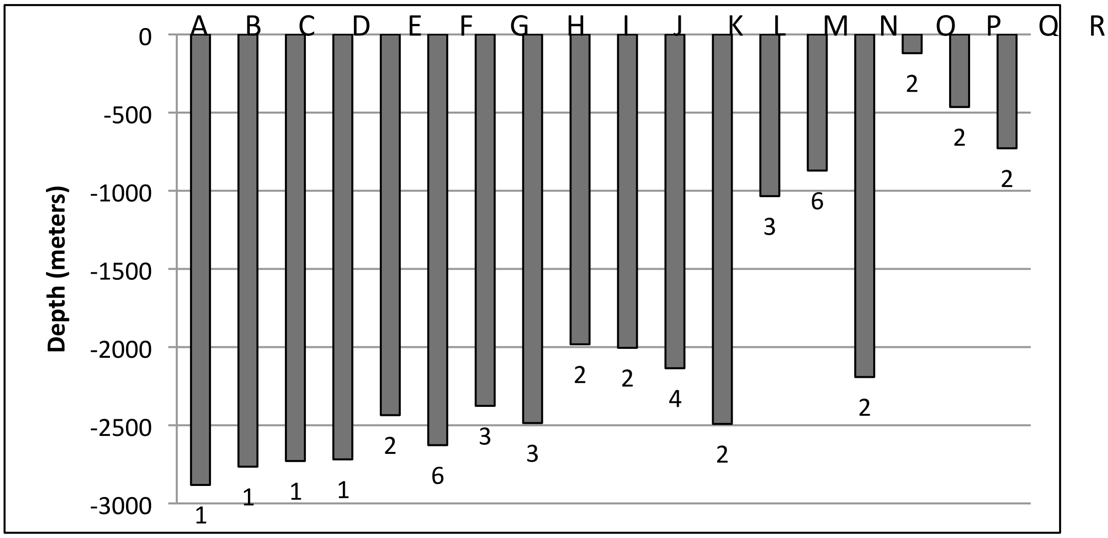


Figure 7.45: Average depth within each grid section where at least one cetacean sighting occurred. Letters correspond with the marked grid units in Figure 7.44. Column length indicates depth, in meters; numbers below columns indicate number of sightings in each grid unit.

The results from the grid analysis of sighting locations corroborate the results from the point analysis, with most successful grid units having average depths between 2,000 and 2,500 meters (6,562-8,202 feet) (Figure 7.46). The average of the average depths for successful grid units is 1,946.77 meters (6,387 feet), a figure about 6.5 percent deeper than the average found in the point analysis.

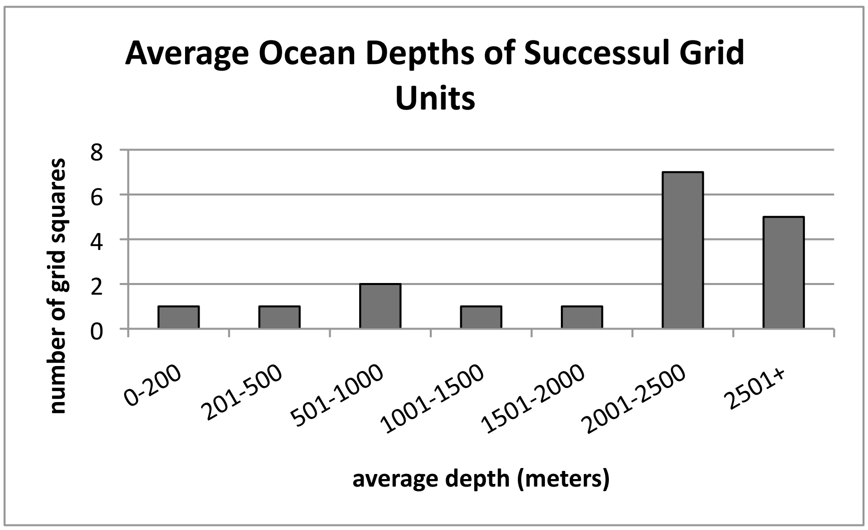


Figure 7.46: Number of successful grid units with various average depths (n=18).

Taken together, these data indicate a preference for deep and/or turbulent water among cetaceans of the various species hunted by Vincentian whalers. This preference is firmly linked to the presence of the fish and squid upon which the cetaceans prey. The location of the squid and fish, in turn, is linked to their prey, and so on. Thus, the areas of highest primary productivity, as identified by Ingham and Mahnken (1966), also represent the areas in which whaling efforts find their highest degree of productivity.

Faroe Islands

The goal of applying spatial analysis methods to the research in the Faroe Islands is to test the hypothesis that the physical structure of a beach is the key factor to its selection as an approved hvalvágir, or whale bay. The specific physical features of interest are the beach's slope (m) and smoothness (r^2). The following four data points are presented below in Table 7.7 for approved hvalvágir and in Table 7.8 for non-approved beaches: m1 (slope of the beach on land), m2 (slope of the beach underwater), $r^2$1 (smoothness of the beach on land), and $r^2$2 (smoothness of the beach underwater).

Table 7.7: Approved whaling bays with data from coastal surveys. m1 = slope before waterline (landward), $r^2$1 = variance before waterline, m2 = slope after waterline (seaward), $r^2$2 = variance after waterline.

Beach	m1	$r^2$1	m2	$r^2$2
Bøur	-0.1416	0.80072	-0.1112	0.87151
Fámjin	-0.0754	0.60406	-0.0259	0.43391
Fuglafjørður	-0.0547	0.88159	-0.0017	0.0667
Gøta, north	-0.0192	0.4886	0.0067	0.0694
Gøta, south	-0.0531	0.45725	-0.0183	0.36721
Húsavík	-0.109	0.9306	-0.0047	0.01772
Hvalba	-0.0474	0.85816	-0.0414	0.87891
Hvalvík	-0.0712	0.61012	-0.0551	0.56948
Hvannasund	-0.001	0.00947	-0.352	0.67188
Klaksvík	-0.0315	0.55334	-0.0151	0.90987
Leynar	-0.0185	0.6987	-0.0261	0.83429
Midvágur	-0.1161	0.78993	-0.0459	0.93798
Øravík	-0.0456	0.31273	-0.0602	0.77699
Sandavágur	-0.0214	0.0021	-0.0262	0.47352
Sandur	-0.0348	0.72434	-0.0509	0.22127
Tjørnuvík	-0.0239	0.15738	-0.0023	0.06442
Tórshavn	-0.0223	0.5891	-0.013	0.8927
Vestmanna	-0.0606	0.71251	-0.0357	0.88497

Table 7.8: Bays not approved for whaling with data from coastal surveys. m1 = slope before waterline (landward), $r^2 1$ = variance before waterline, m2 = slope after waterline (seaward), $r^2 2$ = variance after waterline.

Beach	m1	$r^2 1$	m2	$r^2 2$
Arnafjørður	-0.068	0.79822	-0.0696	0.8704
Borðoyarvík	-0.1973	0.6316	-0.1377	0.56002
Dalvik	-0.1818	0.90392	-0.1244	0.87046
Haraldsund	-0.1447	0.84765	-0.0777	0.9629
Hosvík	-0.0806	0.93926	-0.0161	0.05907
Kaldbak	-0.0875	0.91733	-0.0463	0.85081
Lambi	-0.0889	0.96706	-0.0647	0.58429
Saksun	0.0091	0.1103	-0.0313	0.6498
Sandvík	-0.0288	0.0718	-0.0349	1
Sørvágur	-0.0001	0.0004	-0.0098	0.78121
Sumba	-0.1553	0.96835	-0.1017	0.96734

The ideal beach, based upon previous literature, should be very smooth with a gradual slope. In the trend line datasets above, these characteristics would be represented by an m-value closely approaching zero and an r^2-value closely approaching 1. The values from the tables are plotted below in Figure 7.47 and Figure 7.48.

On the graphs below, the best beaches for whaling should be clustered toward the (0,1) point (indicated on each graph by a star). For the onshore portion of the beaches, it appears from the graph in Figure 7.48 that the approved beaches are indeed clustered toward the ideal coordinates and that the non-approved beaches are further from this ideal. The underwater portion is less definite, with both approved and non-approved beaches clustering near the (0,1) coordinate, as well as several outliers of both beach types.

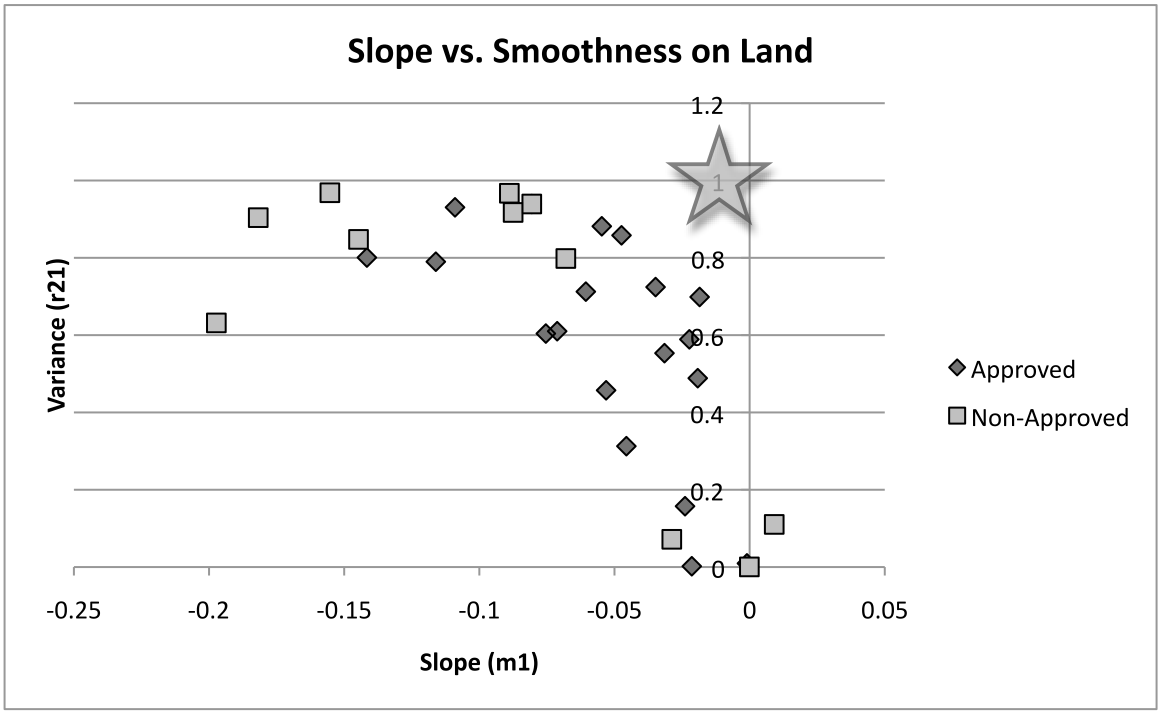


Figure 7.47: Plot of values for slope and variance of the onshore portion of all measured beaches.

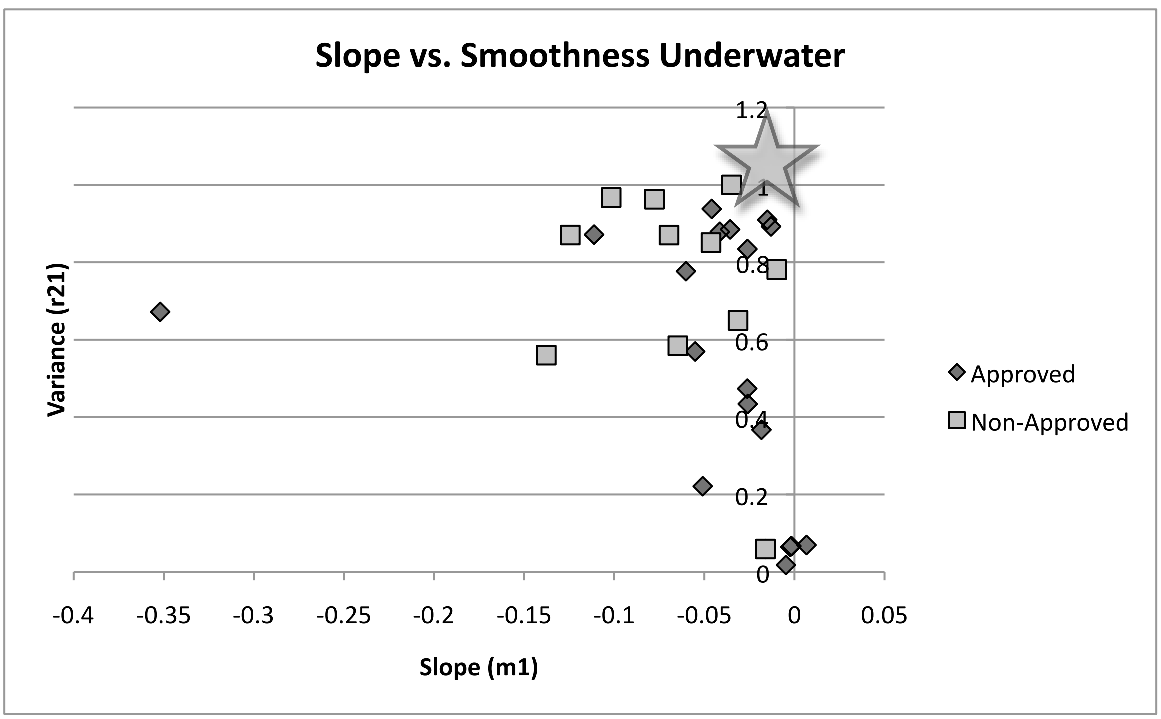


Figure 7.48: Plot of values for slope and variance of the underwater portion of all measured beaches.

Because the data cannot be intuitively distinguished, I turn to statistical testing methods to determine whether there is a statistically significant difference in a comparison of the slopes and smoothness values of approved and non-approved beaches. Using the null hypothesis that there is no difference between the measured values of approved beaches and those of non-approved beaches, I conducted a two-sample t-test and a Wilcoxon rank sum test to test the null hypothesis that, "there is no significant difference in slope and smoothness between approved and non-approved beaches." The p-values that resulted from these tests are given below (Table 7.9).

Table 7.9: The p-values for two tests of the null hypothesis.

	t-test	rank sum test
m1	0.1009	0.1015
m2	0.4891	0.0613
$r^2 1$	0.2016	0.0922
$r^2 2$	0.0411	0.0836

According to both tests, the onshore slopes (m1) do differ significantly between approved and non-approved beaches. The significance of the difference between underwater slopes (m2) is less certain. The differences in the measurements of smoothness underwater ($r^2 2$) are not significant, while the differences in the smoothness onshore ($r^2 1$) are marginally significant. Of the four beach measurements, two differ in marginally significant ways, one differs significantly, and one does not differ significantly. In all, it is reasonable to provisionally reject the null hypothesis, and to conclude that the physical structure of the beaches, defined here as the slope and smoothness, both onshore and underwater, does play a role—although not a major one—in the classification of approved and non-approved whaling bays.

CHAPTER 8: COMPARISONS AND CONCLUSION

This chapter presents a final analysis and comparison between the artisanal whaling operations in St. Vincent and the Faroe Islands. The broad criteria through which this comparison is made are the three themes of this dissertation: culture, conflict, and conservation. The chapter concludes by addressing the research questions directly: Why does Atlantic artisanal whaling occur today only in the Faroe Islands and St. Vincent? And how have the Vincentian and Faroese whalers managed to maintain sustainable take levels, based primarily upon culturally embedded conservation strategies?

Culture

The cultures of St. Vincent and the Faroe Islands are influential in the continuation of artisanal whaling. Whaling became important to the cultures initially because of its provision for the subsistence needs of the people. This basic and very real connection to whaling continues today, as evidenced by the daily whaling voyages and sales of cetacean products in St. Vincent, and the ever-present possibility that a grindadráp could occur on any given day in the Faroe Islands.

Through economic systems, whaling also came to provide a way of life for some people and through systems of religion and other interactions with the supernatural, whaling has come to maintain a symbolic position, in addition to its practical provision of food products. Each of these special roles of whaling will be examined below.

Whaling and Personal Reward

In the Faroe Islands and St. Vincent, whaling provides an opportunity both for personal reward and for acts of generosity. The anthropologist Jonathan Wylie (1993) describes situations in the Faroe Islands and Dominica, a Caribbean island near St. Vincent, that result in an immediate abundance of food as “crises of glut.” How these “crises” are handled is based on the forms and traditions of the local culture.

In St. Vincent, a whale brings immediate cash reward to the boat owner and his crew but also provides food for the community. When whales are butchered, the blubber is promptly cut into small cubes and fried to produce crisps, a favorite snack that is usually given away to people who have queued near the cooking facility awaiting their handout. In the Faroe Islands, whale meat and blubber are distributed among the households of the district in which the grindadráp took place. In both contexts, people in the local communities who have not participated in whaling activities are recipients of proceeds from the efforts of those who have. This situation serves to reinforce the status and popularity of the whalers and also engenders good community relations, social activity, and feelings of mutual dependence.

The whalers are also rewarded with a period of rest and relaxation after a large catch. In the village of Soufrière on St. Lucia, where artisanal fishermen occasionally take pilot whales and other cetaceans opportunistically, I spoke to a 48 year-old fisherman who had harpooned a large pilot whale the previous day. He had sold the whale to a local vendor for EC$9,000 (US$3,564). The whaler told me that the windfall had allowed him to spend the next week to two weeks “on vacation”—an aspect of labor not enjoyed by many Caribbean peasants. Similarly, according to the financial records of Samuel Hazelwood, my main Vincentian informant, on thirty-two percent of the days after catching at least one pilot whale, and on forty-two percent of the days after grossing at least EC$1,000 (US$372), the crew of the *Sea Hunter* took the day off.

In the Faroe Islands, great personal reward—an entire whale—is given to the person who first sights a pod that is eventually killed in a grindadráp. Usually, all participants in the grindadráp receive large portions of meat and blubber, with much left over to distribute to the non-participating members of the community. Persons with special tasks, such as the metingarmenn or the sýslumaður, receive rewards of extra portions of meat and blubber for their work. However, whalers and those with special jobs are not the only ones to benefit from a grindadráp.

A successful grindadráp has been historically followed by a community celebration. After the whales were brought ashore, as they were being counted, measured, and assessed by the authorities, the whalers and other community members held a traditional *grindadansur*, or pilot whale dance. In the past, these celebrations of a community's good fortune provided the peasants with welcome breaks from a mostly solitary life of farming or fishing. Today this tradition is fading but the convivial spirit and celebratory tone surrounding the grindadráp remain as cultural vestiges. Men who consistently perform well during the grindadráp receive admiration for their skills and are often sought by the sýslumaður to fill the roles of metingarmann and grindaformann, and to serve as informal teachers to those who desire to learn the skills necessary to conduct a successful grindadráp.

Whaling has provided opportunities for the establishment of elevated status, a reliable food source, acts of generosity, and personal and community recreation in both locations. Whalers themselves are personally rewarded for their efforts both financially and through the elevation of social standing. Whaling is dangerous and difficult work and those who undertake it are rewarded for their skills and bravery. These incentives are constructed and maintained in the Faroe Islands and St. Vincent, and have contributed to the establishment and endurance of whaling as a cultural expression in these locations.

Whaling and the Supernatural

In both the Faroe Islands and St. Vincent, belief in the supernatural plays an important role in whaling customs. Spiritual influences include the dietary proscriptions of organized religious denominations, culturally embedded traditional rules of behavior before and during whaling activities, and the subjective interpretations of dreams and myriad seemingly unrelated goings-on as they inform the knowledge necessary for successful whaling.

From at least the time of the Basque whalers, whale flesh has resisted definite classification as meat. According to *The Catholic Encyclopedia*'s entry titled "Fast" the Roman Catholic Church has traditionally forbidden the eating of "flesh-meat" during fast days, which included the forty days of Lent, every Friday, and certain other holidays (Herbermann et al. 1913). However, the exact application of the laws of fasting is subject to the situations in which they are found and "must be understood and applied with due regard for the customs of various times and places" (Herbemann et al. 1913, 790). In Europe, where protein sources alternative to the meat of livestock or other land mammals were readily available, the tradition of eating fish on fast days developed. As whales were grouped together with fish, at least within doctrinal taxonomy, the Basque whaling industry grew profitable, in part owing to the sale of whale meat to Catholics on fast days.

Today, religious doctrine more frequently proscribes whale meat than specially permitting its consumption. In St. Vincent, both the Rastafarian and Seventh-Day Adventist groups conform to Levitical dietary guidelines and therefore prohibit the consumption of whale meat and blubber. Adherents to both faiths seem to be more free to use pilot whale oil, perhaps because it is primarily used as a medicine, rather than a food product.

In the Faroe Islands, we find no example of a religious/cultural revitalization movement analogous to Rastafarianism in St. Vincent and the wider Caribbean. Neither the Ásatrú movement, which has been called a “rebirth of Nordic paganism” (Strmiska 2000, 106) and has attracted a modest following in Iceland (Erlendsdóttir 2001), nor Forn Siðr, a “Danish religious community” that “worships the old Nordic powers” (Konijnendijk 2008, 31) is represented within the Faroese religious landscape. However, a small (about seventy members in 2009) Seventh-Day Adventist church has been established in Tórshavn since the early twentieth century. According to the current pastor of this church, “the Adventist diet is relaxed here” (Jens Danielsen, personal communication). Citing the social significance of participation in the grindadráp as well as the high monetary cost of adherence to the Adventist-recommended diet of total vegetarianism since most vegetables are imported to the Faroe Islands, Danielsen concedes that choices of whether to participate in whaling activities and whether to consume whale products are best left to the individual.

In each of this study’s locations, formal religious principles are buttressed by a loosely defined body of superstitious or mystical beliefs. On several occasions, whalers in St. Vincent confided with me that they had dreamt of whales the night before and therefore expected a good catch on the day’s voyage. Whether the occurrence of these dreams has any correlation to the catch records is irrelevant. The belief that such correlation exists is evidence of a supernatural connection between dreams and whaling success in the minds of some Vincentian whalers. The interpretation of dreams is especially important to adherents of the Spiritual

Baptist faith—a religion endemic to St. Vincent (Zane 1999)—however, dreams seem to be especially prescient for whalers in particular, regardless of their denominational affiliation.

In the Faroe Islands, several superstitious beliefs have arisen with regard to the grindadráp. Along with certain forbidden behaviors (e.g. urinating into the sea, pointing directly at the whales with whaling tools or a finger, or the viewing of whaling activities by clergy or women—especially pregnant women) there are several forbidden words that, if spoken, are thought to reduce the chances of successfully driving the pod of whales ashore (Bloch and Joensen 2001). In place of these words, Faroese whalers developed a series of *noa-words* or euphemisms, to refer to objects, animals, or activities that were forbidden to be called by their proper names (Lockwood 1955). The development of a euphemistic vocabulary to avoid the supposed negative results of speaking forbidden words, used during periods of transition (van Gennep 1909), while hunting (Bulmer 1967), or while at sea (Hurgronje 1906; Flom 1925; Knooihuizen 2008) is by no means an exclusively Faroese tradition. However, it was widespread in the Faroe Islands until at least the late nineteenth century (Lockwood 1955) and remains in the cultural memory, if not in actual practice, today.

These beliefs regarding the interpretation of dreams or the proscription of certain words or actions are likely the result of attempts to find order in an activity that occurs beyond the control of the people acknowledged as experts. The religious restrictions, first advocating, then prohibiting the consumption of cetacean products—with the curious exceptions made in the case of oil in St. Vincent and the optional nature of the regulations in the Faroe Islands indicate the co-evolution of whaling traditions and the mores of the cultures in which they are found. The institutions of religion in both St. Vincent and the Faroe Islands have, to some degree, found ways to accommodate whaling within their traditions.

Conflict

Two distinct types of conflict were introduced as potential threats to the continuation of whaling operations in St. Vincent and the Faroe Islands: anti-whaling activism and the ecological issue of marine pollution and its effects upon human health. The similarities and inequalities involved in each of these conflicts will now be discussed.

Anti-Whaling Activism

The tension between these artisanal whaling societies and the anti-whaling movement can be understood, in part, because of this symbolic value of the pilot whale within both whaling and anti-whaling cultural groups. Pilot whales have come to hold the position of Cultural Keystone Species among the Faroese and Vincentian peoples, while at the same time joining the broad concept of "Whale" in its ascent to totemic status among non-whaling—specifically anti-whaling—cultures (Kalland 1993a; 1994a). The removal of the pilot whale from the conceptualization and experience of what it is to be Vincentian or Faroese would "entail significant cultural disruptions" (Cristancho and Vining 2004, 155). At the same time, to imbue this species with a reverence approaching kinship (Lévi-Strauss 1963; Kalland 1993a; 1994a; Simoons 1994; Durkheim 2001; Sakakibara 2009) and to see it hunted by members of a different cultural group, or even to know that such activities occur, can be understandably horrifying (see Sanderson 1990; 1994). As such, the ability of whaling operations to peacefully coexist with forms of human-whale interactions better suited to those who totemize whales, such as whale-watching, has been strongly questioned (Anonymous 1994; Orams 2001; Hoyt and Hvenegaard 2002; Parsons and Rawles 2003; Higham and Lusseau 2007).

However, St. Vincent and the Faroe Islands have not received equal attention by those opposed to whaling. Within anti-whaling environmentalist literature, oft-exploited classes that are lower in socioeconomic standing are chastised less for using whales as a food source than are the more socioeconomically advantaged classes. Higher socioeconomic classes are expected to produce food by relying to a higher degree on agriculture and the raising of livestock. This lack of equivalence in the granting of public approval for whaling activities is seen through the relative lack of public opposition to aboriginal subsistence whaling (as defined by the IWC) as well as through the inequality of protests and boycotts in opposition to whaling in St. Vincent and to whaling in the Faroe Islands.

St. Vincent, a poor Caribbean nation (US$18,100 GDP per capita), does not receive the same volume of criticism for its whaling activities as the Faroe Islands, a European nation with a relatively high (US$48,200) GDP per capita (St. Vincent and the Grenadines 2005; Hagstova Føroya 2010). Kate Sanderson (1994, 187), in her analysis of the Faroese experience with the anti-whaling movement, cites a typical argument:

> If they [the Faroese] want to kill whales in the traditional way, that's fine with us, if nothing else about their way of life, significantly anyway, has changed.
> —Sean Whyte, Chief Executive, Whale and Dolphin Conservation Society, TV Interview, 1991.

Sanderson (1994, 195) acknowledges the uniqueness of Faroese pilot whaling as, "a subsistence hunt for food in what is now, in most other respects, a modern technological society." She singles out this ambiguity for critical analysis, challenging scholars and other outsiders to reconsider their assumptions:

> Pilot whaling represents a meeting and merging of boundaries between land and sea, between the social and the wild, between culture and nature, between the pre-modern and the post-modern, between the historical continuity and modern function of a traditional form of food production and prevailing perceptions of modern society. As a result it also challenges us to rethink our all too rigid definition of what it is to be modern and civilised, and our increasingly artificial relationship with nature. Pilot whaling in the Faroes provides Faroe Islanders

> with food; for others, it may also provide some food for thought. (Sanderson 1994, 199)

Why have the Faroe Islands been involved in a disproportionate amount of anti-whaling conflict, as compared to St. Vincent? An analysis of the whaling records from each location shows that the Faroese do take significantly more cetaceans annually, on average, than do the Vincentians. The annual average since 1962 for St. Vincent is 305, compared with 1,358 annually for the Faroe Islands during this same time period. But the size of the pilot whale population is known in Faroese waters and the take is shown to be sustainable (Buckland et al. 1993; NAMMCO 1997 [both cited in Culik 2004]). Caribbean whale populations, on the other hand, remain unmeasured (Reeves and Leatherwood 1994; Reeves 2005) and sustainability must be inferred from effort and catch data (Scott 1995). Time-to-death data show that Faroese whaling involves quicker—and presumably then, more humane—deaths for the whales than does Vincentian whaling. Based upon these measures, it would seem that whaling opponents making both ethical and environmental arguments would more strongly oppose Vincentian whaling than Faroese. This has not been the case.

Rather than the standard environmental or ethical argument, I would point out two great differences that affect anti-whaling discourse regarding these locations. The first is directly related to the method of whaling. Due primarily to the physical morphology of the Faroese landscape, whaling there is conducted on the beach, usually in or near a village, and in full view of the Faroese public, foreign tourists, activists with cameras, and anyone else who happens to be on the scene. Additionally, though grindadráp occur only a few times per year (the long-term average is seven annually), the scene of any one grindadráp is one of mass slaughter—many whales killed at once. This spectacle, certainly enhanced by the reddening of the water as blood is spilled from the whales, has served as the subject of many a shocking photograph—a great number of which have been used, with or without their copyright-holder's permission, in anti-whaling literature.

By comparison, Vincentian whaling involves a much smaller number of individual whales per whaling event and most of the "action" takes place far from shore, under the eyes of the whalers alone. In the context of Vincentian whaling, the opportunities for obtaining subjects for visual display of spectacle are simply not as readily available. Thus, Faroese whaling has been the subject of a significantly greater amount of graphic visual anti-whaling literature.

The second difference that has led to the lack of parity in anti-whaling sentiment directed at St. Vincent and the Faroe Islands has more to do with the cultures, as wholes, within which these whaling operations are found. Arne Kalland (1993a; 1993b; 1994a; 1998; 1999; 2009) and Milton Freeman (1990; Freeman and Kreuter 1994) have shown that public perceptions of whaling are least supportive in predominately white, English-speaking, affluent societies such as the USA, UK, and Australia. Richard Bulliet's (2007) identification of these areas as the heartlands of the postdomestic era—characterized by the physical and intellectual separation of consumers from most methods of food production—supports the views of Kalland and Freeman. Additionally, those who generally oppose whaling may be more permissive of the activity when it occurs in societies most unlike their own (Freeman 1993b, 1998; Kalland 1994b). Aboriginal subsistence whaling by Inuit peoples is less contested than Japanese whaling, for example, because the former is perceived to be one of the few methods of food production available to those by whom it is practiced.

Along this line of reasoning, whaling is something that is done by the Other: those without access to western methods of food production or commodity imports. Vincentian whalers, in their poverty and blackness, are perhaps perceived by white North Americans, Europeans, and Australians as having no other choice but to exploit nearby whale populations. The Faroese, on the other hand, are white, European, and affluent—certainly not the model of a people that must whale to survive.

These positions are problematic in several ways. First, why should the location of the whaling activities—onshore or at sea—determine their morality? While the locations are primarily selected out of practicality—physical geography limits the Vincentians to offshore whaling and permits drive-style whaling by the Faroese—the fact that so many approved whaling bays are found in or near population centers in the Faroe Islands indicates an openness, an unashamedness, and a willingness for grindadráp to be viewed, documented, and even participated in, by the public. This difference has affected the relative volume of conflict over issues of whaling simply by making documentary evidence much easier to obtain in the Faroe Islands than in St. Vincent.

Second, the unspoken assumption in the argument that whaling is only to be done by the Other is that whales should be a food source of last resort. Paul Watson of the Sea Shepherd Conservation Society (personal communication) speaks for many who oppose Faroese whaling when he calls it “unjustified” and “not necessary for subsistence” and goes on to say that “you cannot compare the materially wealthy communities in the Faeroes with subsistence communities in Greenland or Northern Canada.”

Why, though, should a sustainable operation targeting a stable whale population be conducted only by a people without other options? Even if this ostensibly functionalist argument were valid, St. Vincent, with its tropical climate and comparatively more fertile soils supports significantly more options for agriculture than do the Faroe Islands, yet the Faroese are the recipients of far more anti-whaling protest than the Vincentians. The argument of necessity, then, is exposed as merely an argument of prejudice. The Vincentians, in their perceived Otherness, are excused for taking a few small whales each day in order that they might survive. The Faroese, in their European sameness, are castigated as anachronistic practitioners of a mass slaughter that could easily be replaced by the importation of foreign foodstuffs.

Vincentian whalers, it is perceived then, conduct an objectionable method of food production out of necessity and at least have the unintended “decency” to do it out of sight of land. The Faroese on the other hand, immodestly slaughter entire pods of whales in full view of the public, turning their harbors to blood so they can be photographed. Although most species of Caribbean cetaceans remain uncounted, and thus sustainable take levels can only be estimated through an analysis of historical catch records and levels of effort, Vincentians are perceived to better fit the role of the “ecologically noble savage” (Redford 1990) and are thus not targeted as much as the Faroese by anti-whaling activists.

Kalland (1993a, 126) has shown that, despite the wide variety in population levels of various cetacean species, many people believe simply that “whales are endangered.” This socially-constructed belief about nature allows the restriction of whaling only to those who cannot survive without it. Under analysis, however, the differences in whaling and anti-whaling in St. Vincent and the Faroe Islands can be reduced to physical geography and cultural prejudice. These conflicts, inequalities, and prejudices, then, are not based upon a scientific study of some pure interaction between humans and the natural environment, but upon socially-constructed roles of human interaction with an equally socially-constructed nature.

Kalland (1994b) shows that those who advocate special rights for whales and dolphins often portray cetaceans as having positive human qualities. These qualities—such as intelligence, family bonding, and communicative abilities—have allowed whales and dolphins to hold a special status within human-animal relations. This allowance does not follow Wolch and Emel's (1995b) model of "bringing the animals back in," by which the socially-constructed dichotomy separating humans and non-human animals would be broken down. Rather, it is a slightly more inclusive form of Singer's (1976, 235ff) "speciesism." Simply "bringing in" the order *Cetacea* and allowing these animals to share the space formerly occupied only by *Homo sapiens* does little to change speciesist thinking, except where this one taxonomic order is concerned. Advocates of special rights for whales, who do not grant those rights to other animals, construct essentially the same dichotomy that Wolch and Emel sought to move beyond. Rather than questioning society's speciesist constructions in general, whale advocates simply quibble over which species should be on either side of the dichotomy between "us" and "them."

Environmental Pollutants

While the subjects of marine pollution, bioaccumulation, and human health have been more conclusively investigated in the context of the Faroe Islands than in St. Vincent, Vincentians are not ignorant of the risks posed by pollutants in their waters. A 1992 paper written for a course at the St. Vincent's Teachers' College, on file at the St. Vincent and the Grenadines National Archive, (Dalton 1992) indicates the risks posed by a ship, the *M/V Edwina*, which had run aground and was thought to be introducing copper to the local marine environment. The paper's author summarized public concern over the situation by noting that "fishes and ultimately humans will be affected as the food chain becomes infected" (Dalton

1992, 43). However, beyond acute and visible incidents such as the running aground of a ship, there appears to be little concern amongst Vincentian scholars or health authorities regarding the potential effects of marine pollutants on human health. Indeed, of the students surveyed for this study, sixty-eight percent stated that pilot whale meat is a "healthy food" and forty-five percent had the same opinion of blubber.

In the Faroe Islands, we find such a concern over the potentially harmful effects of marine pollutants that the official government position is to advocate for the closure of the grindadráp, arguably the most ubiquitous identifier of Faroese culture and national identity. Even more, since the grindadráp is primarily a method of food production and not simply a symbolic element of the culture, its potential closure would result in a shortfall of necessary goods, which would need to be replaced. Since the grindadráp produces food at almost little cost to the Faroese people (boat fuel, time, and the tax that covers injuries and damages are the major costs involved), any replacement would come with an attached economic burden. The fact that some of the Faroese national budget is partially subsidized by Denmark would then become a point of contention. The creation of a need for funds where previously none existed may serve to convince some within the Faroese government and public alike that the Faroe Islands are not yet financially ready to establish full independence from Denmark as financial concerns are already a major point of debate regarding the possibility of Faroese independence (Østergaard 1992; Ackrén 2006). In this scenario, the grindadráp would not only represent Faroese national identity, it may serve to enable the Faroese to proceed toward political independence. Without the grindadráp, the Faroe Islands may be less likely to establish complete independence from the oversight and subsidies of the Danish crown.

A call for continued research is in order. The most recent study that investigated levels of toxic pollutants in cetaceans from the waters surrounding St. Vincent is now over three decades old (Gaskin et al. 1974). Marine biologists must soon undertake research to determine the level of contamination by MeHg and other toxins in the tissues of the cetaceans caught by Vincentian whalers and physicians must study the associated human heath risks in the consumption of the food products that come from these cetaceans. Certainly the public health officials in St. Vincent and the Grenadines, if provided with the necessary data, would create dietary guidelines that would lessen the risk of health problems. Perhaps the Faroese research—spanning more than three decades—could provide a starting point to the Vincentian health officials in forming their own conclusions for a healthy and nutritious future.

Conservation

Whaling operations in both locations are governed only by local regulations. Because of the species targeted, no international conservation treaties apply—except to regulate international export of cetacean products, which rarely occurs. In St. Vincent and the Faroe Islands, cultural traditions dictate the primary strategies of conservation. These traditions have been codified in Faroese legislation (Petersen and Mortensen 1998; Faroe Islands 2001), while in St. Vincent they remain unwritten. Indeed the fisheries regulations of St. Vincent and the Grenadines do not mention pilot whales, "blackfish," or any other marine mammal (SVG 2001; 2006).

Based upon cultural traditions that predate the written laws, whaling regulations in the Faroe Islands serve to ensure that grindadráp are quick and orderly, occur only when there is a need for the meat and blubber, are conducted only in approved locations, and provide food at no cost to the local residents. This combination of strategies ideally limits the time-to-death for each whale, moderates the number of whales killed annually, and ensures that a system of monitoring and evaluation remains in place.

In St. Vincent, the traditional—but not formalized—restriction of whaling activities to only Barrouallie controls the number of whales killed because it limits the number of whaling boats competing for the same resource. It also restricts the supply of whale meat and blubber to only that which can be bought, processed, and sold by Barrouallie's vendors. Additionally, the unwillingness of the Vincentian whalers and the Fisheries Division to upgrade the whaling technology limits the expansion and efficiency of the operation. While sustainability in the context of St. Vincent whaling is difficult to determine, owing to the lack of official cetacean population estimates, the relative consistency of the historical whaling records, when adjusted for effort, indicate that the regional whale and dolphin populations are likely large enough to adjust to current take levels (Scott 1995).

The cultures in both St. Vincent and the Faroe Islands have produced their own conservation strategies for managing the whaling operations and encouraging sustainable hunting pressures. However, the human population in each location is increasing and, as the results from the student surveys show, pilot whale meat and other products remain popular among both the Faroese and Vincentian youth.

In the Faroe Islands since 2008, the official government position is to discourage whaling because of the human health effects of marine toxins present in whale meat and blubber (Weihe and Joensen 2008). Consumption levels have decreased as a result of the 1998 and 2008 health recommendations and there is some indication that pilot whale meat and blubber is undergoing a transformation from an ordinary meal to a ceremonial meal, eaten only in small amounts on special occasions. Twenty percent of the students surveyed in the Faroe Islands now eat pilot whale meat and blubber only for "special occasions" rather than as an ordinary meal. This percentage will likely increase as more Faroese seek to resolve the tension between their respect for the official health recommendations and their cultural attachment to their national dish. In fact, the very physician whose work led to the health recommendations confided to me that he continues to eat pilot whale meat and blubber at weddings and on *Ólavsøka*, the Faroese national holiday (Pál Weihe, personal communication). In St. Vincent, however, where no research into toxicity has been conducted for decades, the government, through grants and loans, actively encourages the expansion of the whaling operation as a legal alternative to marijuana production.

Looking toward the future, it is conceivable that pilot whaling could decrease in regularity and intensity in the Faroe Islands, while at the same time it may increase in St. Vincent, especially given the desire for greater whale product availability among Vincentian youth. If such changes occur, it is all the more vital for some of the knowledge gained during the long Faroese history of pilot whaling to be transferred to the Vincentian context. St. Vincent's whalers and policy-makers alike could benefit from lessons learned about marine pollutants, cetacean population dynamics, humane killing methods, and handling protests, boycotts, and other forms of anti-whaling activism.

Research Questions

Finally, I shall directly address the research questions posed at the beginning of this dissertation. First, why does whaling continue in St. Vincent and the Faroes while it has ceased throughout most of the Atlantic? The answers to this question lie in several characteristics of these two locations and their peoples. Despite their vast cultural, economic, and geographical differences, St. Vincent and the Faroe Islands have in common a reliance upon culturally derived conservation strategies, as described above; cultural pride in the activity of whaling—resulting from the long whaling histories and vital role in survival that whaling has played in both locations; and a marginality with respect to daily consciousness of international tourism, commerce, and transportation. The first of these similarities speaks to the ability of each culture to regulate its own whaling in such a way that it does not overtax the resource, as has occurred in many other whaling operations. Second, the pride in whaling that is evident among young Faroese and Vincentians will continue to strongly encourage a market for whale products—perhaps only token amounts, fulfilling ceremonial, rather than subsistence requirements as the risks of MeHg and other contaminants become greater and better known.

The marginality and peripheral status of both locations serve to insulate them from overtures of anti-whaling sentiment that might arise from increased contact with tourists or other interlopers from abroad who may import their own ethics or environmental knowledge regarding whales and whaling—regardless of where this knowledge may fall on the continuum between social construction and scientific empiricism. This similarity is best attributed to a characteristic shared by both St. Vincent and the Faroe Islands, their *islandness*—a term coined in English during the early 1980s (though the corresponding French term *iléité* may predate it). Islandness refers of the insularity, vulnerability, and uniqueness that come from a place that is bounded by water and separated from the mainlands of culture and commerce (Selwyn 1980; Anckar 1982; Weale 1991; Baldacchino 2004; Conkling 2007; Stratford 2008). Islandness is certainly a leading factor in the retention of whaling traditions in St. Vincent and the Faroe Islands, as is the adherence to culturally derived conservation strategies, the importance of whaling to the local cultures, and whaling's long history of provision for Vincentian and Faroese needs of subsistence.

However, it is true that other Atlantic islands have supported whaling traditions, now ceased. Many of these, including Trinidad, Dominica, and Grenada in the Caribbean, and Ireland, the Shetland Islands, and Newfoundland in the North Atlantic pursued small cetaceans using much the same methods as their contemporaries in St. Vincent and the Faroe Islands. The difference lies in the importance of the products derived from whaling activities in these other locations. The major difference, and a primary reason that whaling has continued in St. Vincent and the Faroe Islands while it ceased in these locations, is that Vincentian and Faroese whaling has always produced food as the primary product, as opposed to oil or other non-food commodities. To be sure, both the Vincentians and the Faroese have produced and exported whale oil. However, the whaling operations in these other locations produced food only as a byproduct, if at all, while the Vincentian and Faroese whaling operations have always been primarily about food production.

The second research question seeks to explain how the Vincentians and Faroese regulate their whaling activities to maintain sustainable take levels despite a lack of international regulations governing the activity. There is evidence to suggest that take levels within both whaling operations are sustainable—a claim more certain in the Faroe Islands than in St. Vincent. However, in both locations, whalers have been exploiting local whale stocks for generations using techniques that have been little altered since they were first introduced and not requiring significantly more effort to maintain steady annual takes.

In both locations, whaling activities are strictly regulated by culturally embedded conservation strategies. Neither the Vincentians nor the Faroese want to see their whale stocks decline. Additionally, although catches of other cetaceans are increasing in both locations, the pilot whale remains a Cultural Keystone Species, owing to its prominence in the language, consciousness, and self-representation of both cultures (Cristancho and Vining 2004; Garibaldi and Turner 2004). The cultural and subsistence value of the whales as a food source encourages a strict adherence to the local traditional strategies of conservation. In some cases, the direct link between the traditional practices and their conservatory potential has been obscured and many are simply understood to be "tradition" (see Stevens 1997). Nevertheless, these traditional practices do promote conservation, whether those who abide by them are aware of it or not. As Henrik Moller and colleagues (2004) suggest, in today's changing cultural and ecological environments, a successful management strategy must take into account not only the traditional, culturally embedded conservation strategies of the local population, but also the best scientific monitoring methods available (see also Freeman 1992; Becker and Ghimire 2003). This combination of approaches has been more thoroughly applied in the Faroe Islands than in St. Vincent, but this inequality should be seen as a call for more collaboration among northern and southern scientists, rather than a criticism of the current state of science and management in St. Vincent.

Environmental Change and the End of Whaling

Finally, in both St. Vincent and the Faroe Islands, the physical environment affects whaling activities in a profound way. Samuel Hazelwood, the harpooner with whom I spent much time in St. Vincent, during the post-lunch rest break of one of our many long whaling days, asked me to describe to him how the Faroese were able to get so many whales to beach themselves at one time. He listened, hopeful that there would be some way to apply the Faroese techniques to his operation, perhaps increasing his catch a hundredfold. I started by explaining that the Faroese coastline is very different from that of St. Vincent. While the latter is made up of steep cliffs and broad beaches, with offshore slopes that dropped quickly to great depths, the former consists of fjords and gently sloping sandy bays within. Drive-style whaling came almost intuitively to the earliest Faroese, or their Norse ancestors. It would be nearly impossible in St. Vincent. The physical environment of the Faroe Islands prevents whales, when trapped in a fjord ahead of a flotilla of boats, from swimming in any direction except toward the beach. In St. Vincent, not only would the whales be alerted to the steeply approaching land by their echolocation, they would also have opportunity to escape to the right or left of the broad, open beach. However, in St. Vincent the presence of very deep water—which is the preferred environment of the targeted whale and dolphin populations—a relatively short distance offshore, makes possible the daily whaling voyages that can bring the harpooners within striking distance of large pods of cetaceans without excessive expenditures of either time or boat fuel. The whaling traditions and specific hunting methods in St. Vincent and the Faroe Islands have arisen in direct response to the conditions and possibilities presented by the physical environment of each location.

This reasoning should not be seen as supportive of the popular "neo-environmental determinism" that is currently underfoot (Sluyter 2003; Judkins et al. 2008). Indeed, it is apparent from the examples in the Faroe Islands that shorelines not conducive to drive-style whaling can be reshaped through large engineering projects if the payoff is deemed worthy of the capital investment. Other tropical locations such as Hawaii (Peale 1848 [cited in Brownell 2008]) and the Solomon Islands (Dawbin 1966; Takekawa 1996a, 1996b) have hosted drive-style whaling in the past, eliminating the possibility that the practice is restricted to northern locations. While not strictly determining human behavior, the physical landscapes of St. Vincent and the Faroe Islands do present certain methods of whaling as having a greater likelihood of success than others.

However, it may be that the physical environment, or the pollution that now contaminates it, could put an end to artisanal whaling in St. Vincent and the Faroe Islands, if not entirely, at least as a major method of food production. While the ecological crisis resulting from the confluence of marine pollution, bioaccumulation, and human health hazards is better understood in the Faroe Islands than in St. Vincent, it is simply one of many degradations that human activity has caused to the environment. The lack of knowledge in St. Vincent of the levels of MeHg and other pollutants in the tissues of the marine mammals should only be attributed to the lack of research in that context and not as an indicator that all is well. While the presence of these contaminants in the Faroe Islands does not necessarily mean that they will be found in St. Vincent, it should serve to encourage ongoing research and the open exchange of ideas between these two remaining artisanal whaling cultures in the Atlantic.

From the perspective of conservation geography, the most important prescription for these artisanal whaling communities is to continue the reliance upon traditional conservation strategies while increasing the relevance of cutting-edge scientific research in the formation of whaling policy. This prescription is stronger for St. Vincent than for the Faroe Islands. Vincentian policymakers must include scientific knowledge in their regulations of whaling and the consumption of whale products. Perhaps the establishment of increased communication between St. Vincent and the Faroe Islands would foster an exchange of knowledge that might give Vincentian scholars a baseline from which to begin their own research.

According to the UN Food and Agricultural Organization (2007, 7), “the maximum wild capture fisheries potential from the world’s oceans has probably been reached.” While the FAO is concerned primarily with commercially caught fish species and less with artisanal whaling, the warning should serve to alert all communities who rely upon marine natural resources that the state of the world's oceans is not good. As crises stemming from the scarcity of natural resources increase, every scholarly discipline must become involved in researching humanity's impact upon the natural environment. It is imperative that we turn to the communities who have the longest association with the sea—islanders and coastal groups around the world—to examine their practices, and make comparisons among them so that we can better understand the long-term effects of our own attempts to make wise use of marine natural resources.

Toward this goal, this research has provided a comparative study of two examples of the roles humans play in their environment, of the complex exchange of influences that occurs when a contested food source is obtained locally but with global implications, and of the unique and endangered cultures that develop hardy and self-sufficient ways of life on their remote island homes.

EPILOGUE

In September 2002, a 32-year-old Faroese man named Erik Niclasen flew to Port-of-Spain, Trinidad, to volunteer aboard the *MV Logos II*, a Maltese-registered ship making a world missionary tour. Soon after his arrival, Erik began meeting his fellow volunteer crewmembers—over 200 young Christians representing forty-five different countries. They had all signed up for a two-year journey throughout Latin America and the Caribbean, participating in service projects and distributing Bibles, literature, and other resources among the communities they would visit.

Shortly before the trip commenced, Erik noticed a pretty young woman among the crew. Nelia Daize was born on St. Vincent in the village of Rose Hall, near Barrouallie, and grew up among family on that island and on Trinidad. She had joined the crew of the *Logos* for much the same reasons as Erik; she wanted to be of service while having a bit of adventure and getting to know other Christians from around the world. When she met Erik, who she claims to have noticed before he noticed her, Nelia had never heard of the Faroe Islands—he told her that he came from a part of Denmark. Onboard the *Logos*, Erik and Nelia were both assigned to the engine room where they worked together and got to know one another. Their two-year volunteer period took them throughout the Caribbean and Central America, through the Panama Canal to the West coasts of North and South America, and finally back to Port-of-Spain.

After one year onboard, Erik and Nelia began dating. When the voyage was completed in September 2004, they married in Trinidad and one month later moved to the Faroese village of Leirvík. When I met Erik and Nelia in 2009, they had two daughters, Anita and Victoria, and were probably the only Faroese-Vincentian family in the world (Figure 9.1).

Figure 9.1: Nelia and Erik Niclasen, with their daughters Victoria (left) and Anita (right).

In May 2009, Nelia's mother, Anita Daize—her granddaughter's namesake—traveled from St. Vincent to the Faroe Islands to visit her daughter's family. During Anita's visit there was a grindadráp: 188 whales killed at Hvalvík. Upon receiving the grindaboð, Erik rushed to get his family into the car and drove from their village of Leirvík on Eysturoy across the bridge to the island of Streymoy so they could witness this uniquely Faroese activity. Standing among the crowd of onlookers, Anita must have watched with a certain degree of familiarity as the pilot whales were driven ashore, killed with simple tools, and processed into food on the beach. Of course the number of whales was much greater than the largest catch she had ever seen landed at Barrouallie. And the actual process of killing was unfamiliar to her, since in St. Vincent this normally happens out at sea rather than on shore in full view of the public. But the idea of capturing and killing large marine mammals for food was not at all foreign to Anita, as it must have been for any other non-Faroese person standing in the crowd that day. She would have understood the methodical urgency with which the whalers were working; shared the celebratory spirit among the crowd who could already imagine the taste of that night's dinner; sympathized with the glances of slight concern being directed at her, a foreigner and—who knows?—maybe an anti-whaling activist; and known the connections to history and the natural environment that were being reinforced—and taught to her granddaughters—by the activity that was happening along the shoreline in front of them. The crowd that had gathered on the beach at Hvalvík must have reminded Anita of the crowds at Barrouallie, eagerly watching as the crew of the whaling boat unloads the day's catch. The entire scene would have blended foreignness with familiarity.

In both the Faroe Islands and St. Vincent, pilot whales are turned to food in liminal spaces. As whalers and processors work in the swash zones, the ebb and flow of ocean waves washes the blood back to sea. Beyond this physical liminality, artisanal whaling in the Atlantic today occurs in a space of cultural and historical liminality. Most of the world has given up, not only whaling, but the approval of whaling. This attitudinal shift occurred in response to history and ecology: the unrestrained capitalistic hunting of large cetaceans that drove several species to—or beyond—the point of extinction.

But artisanal whalers have their own histories. They have their own ecological pasts separate from those of the commercial whalers. In the cases of the Faroe Islands and St. Vincent, the whalers appear to have struck equilibria with the local whale and dolphin populations. While both operations have room for improvement, neither should be cast equally alongside the commercial whalers, whose very history answers the question posed by Melville (1851, 432),

> …whether Leviathan can long endure so wide a chase, and so remorseless a havoc; whether he must not at last be exterminated from the waters, and the last whale, like the last man, smoke his last pipe, and then himself evaporate in the final puff.

Because of their culturally embedded conservation strategies and commitment to subsistence whaling operations, it is unlikely that the Faroese and Vincentian artisanal whalers will ever exterminate the last pilot whale from their waters. However, it is uncertain whether whaling will continue in these places throughout young Anita and Victoria's lifetimes.

Owing primarily to the increase in marine pollutants, but also to the effects of anti-whaling activism, these girls may be of the last generation that knows the taste of either *grind og spík* or blackfish and breadfruit (or in the case of the Niclasen family in particular, both). However, geographers and other researchers have been predicting the demise of artisanal whaling for decades (e.g. Price 1985; Adams 1994; Johnson 2000; Weihe and Joensen 2008) and I do not wish to add my name to that list. Islanders are resourceful people. Whether the Faroese and the Vincentians are able to continue whaling or not is unclear. However, their insular resourcefulness will allow them to provide a nutritious future in which their food will likely come from the sea that surrounds them and, like the seafaring people that they are, they will likely chart their own course to that future.

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APPENDIX A: SURVEY FORM, ST. VINCENT

Blackfish Survey

Thank you for helping me with my research. Your answers will be completely anonymous. You can skip any question that you do not want to answer. Please contact me by telephone (784-497-8171) or by email rfield2@lsu.edu if you have any questions.

Russell Fielding
Department of Geography and Anthropology
Louisiana State University
Baton Rouge, Louisiana, USA

1. What is your age?

2. What is your gender? (circle one)

    a. Male
    b. Female

3. What is your hometown?

4. Do you eat blackfish?

    a. If yes, about how many times per month?

    b. If no, why not?

5. Do you eat crisps?

    a. If yes, about how many times per month?

    b. If no, why not?

6. Do you use blackfish oil?

    a. If yes, about how many times per month?

    b. And if yes, for what purpose?

    c. If no, why not?

7. Would you like for blackfish to be available more often?

8. How much do you like blackfish? (circle one)

    a. more than other meats
    b. about the same as other meats
    c. less than other meats
    d. I don't like it at all
    e. I have never tried it

9. Is blackfish meat a healthy food?

10. Are crisps a healthy food?

11. Is it good for your health to use blackfish oil?

12. Have you ever seen the blackfish corning production in Barrouallie?

13. Have you ever seen a whole blackfish or porpoise (before it is cut up)?

14. Do you know any blackfish fishermen?

15. Do you know any blackfish vendors?

16. Would you consider a career for yourself as either a blackfish fisherman or vendor?

17. Will blackfishing continue in St. Vincent in the future?

18. Tourists are sometimes told that blackfish and breadfruit is the national dish of SVG. Would you agree?

Comments:

APPENDIX B: SURVEY FORM, FAROE ISLANDS

FAROE ISLANDS GRIND SURVEY

Thank you for helping me with my research. Your answers will be completely anonymous. You can skip any question that you do not want to answer. Please contact me at rfield2@lsu.edu if you have any questions.

Russell Fielding, Ph.D. Candidate
Department of Geography and Anthropology
Louisiana State University
Baton Rouge, Louisiana, USA

Demographics:

1. How old are you?

2. What is your gender?
    a. Male
    b. Female

3. What is your hometown?

4. What is your occupation or trade?

5. Which color is your passport?
    a. Red (Denmark/EU)
    b. Green (Faroe Islands)
    c. Other / No Passport / I don't know

Questions:

1. Do you eat grind tvøst? Do you eat spik?

2. When grind is available, how often do you eat it?

3. Do you eat grind for a special occasion or for a normal meal?

4. Do you ever buy grind and/or spik in the shops?

5. Do you eat more or less grind now, compared to when you were young?

6. Do you participate in the grindadráp?

7. If so, what is your normal role in the grindadráp?

8. Do you enjoy the grindadráp?

9. If you participate, what is the main reason?

10. Do you know any of the grindaforemenn for your district?

11. Will the grind continue in the future?

12. How do the young people in your area contribute to the grindadráp?

13. Are there still protests and threats of boycott?

14. In 2008, Landslægen recommended that grind and spik are no longer safe for human consumption. Will this recommendation change your eating habits?

15. Do you understand the science behind Landslægen's recommendations?

16. Dried grind, spik, and potatoes is presented to tourists as the Faroese national dish. If the grind was to stop, what would replace this as the new Faroese national dish?

Comments:

APPENDIX C: INTERNATIONAL WHALING COMMISSION DOCUMENTS

Checklist for IWC Whales Taken by Aboriginal Exception to the Moratorium

International Whaling Commission
The Red House, 135 Station Road
Impington, Cambridge CB24 9NP, UK
Tel: +44 (0)1223 233971
Fax: +44 (0)1223 232876
E-mail: Secretariat@iwcoffice.org
Web site: http://www.iwcoffice.org

Checklist of Information Required or Requested under Section VI of the Schedule

Please complete this form as fully as possible, and send preferably electronically to Secretariat@iwcoffice.org. Not all of the items are relevant to aboriginal subsistence whaling.

Contracting Government	
Season	

Item [and relevant Schedule Paragraph]	**Collected, recorded or completed**		**Place(s) information sent or held (tick all that apply).** 1 = sent to IWC Secretariat; 2 = paper to Sci. Committee; 3 = national archives; 4 = other (specify)				**% of catch or fleet for which collected, recorded or completed**
	Yes	**No**	**1**	**2**	**3**	**4**	
Date each whale taken [27]							
Time each whale taken [24]							
Position each whale taken [27]							
Species each whale taken [24, 27]							
Length of each whale taken [24]							
Sex each whale taken [24, 27]							
If female, whether lactating [24]							
Length and sex of foetus, if present [24, 27]							
Collection of either both ovaries or combined weight of both testes [27]							
▪ Analysis of this material [29]							
Collection of at least one earplug/tooth [29]							
▪ Analysis of this material [29]							
Method used to kill each whale, other than harpoon [25]							
Number of whales struck and lost [25, 27]							
Full explanation of each infraction [24]							

Item [and relevant Schedule Paragraph]	Collected, recorded or completed		Place(s) information sent or held (tick all that apply). 1 = sent to IWC Secretariat; 2 = paper to Sci. Committee; 3 = national archives; 4 = other (specify)				% of catch or fleet for which collected, recorded or completed
	Yes	No	1	2	3	4	
Amount of oil of each grade, meal fertiliser and other products [27]							
Name and GRT of each factory ship [28]							
Notification of factory ship to operate south of 40°S [26]							
Number of baleen whales taken south of 40°S at end of each week (or day, if applicable) [26]							
List of land stations in operation [28]							
GRT, length, HP of each catcher [28]							
No days each catcher on whaling grounds [28]							
Starting and closing date for each catcher for the season [28]							
Markings identifying catcher and order of catching [28]							
Time spent each day on different components of the whaling operations [28]							
Logbook information given in Appendix A [28]							
Other suitable indicator of effort for small-type whaling [28]							
No. miles searched by aircraft each day [28]							
Provision of national laws and regulations relating to whales and whaling and any changes [31]							

Form for Reporting Infractions against IWC Regulations

International Whaling Commission
The Red House, 135 Station Road, Impington, Cambridge CB24 9NP, UK
Tel: +44 (0)1223 233971; Fax: +44 (0)1223 232876
E-mail: Secretariat@iwcoffice.org; Web site: http://www.iwcoffice.org

Report on infractions of the International Convention for the Regulation of Whaling, 1946 and summary information on catches

Please complete this form[1] as fully as possible, preferably electronically, and return by 11 May 2009 to Secretariat@iwcoffice.org**.**

Aboriginal subsistence / commercial whaling : Please complete Tables 1 to 5 as appropriate

Other Infractions : If the infractions being reported are not associated with aboriginal subsistence or commercial whaling, please complete Tables 4 and 5 as appropriate

Contracting Government	

Table 1.

Whaling activity (e.g. aboriginal subsistence / commercial)	
Season	
Number of *Active* crews/vessels	

Table 2. Summary of information on inspection and observation:

Percentage of catch under direct national inspection	
Percentage of catch under inspection under an international programme	

Table 3. Summary of information on catches and, if any, infractions:

Species	Total animals landed			*Additional* animals struck but lost	Catch/strike overrun (give number)	Other infractions (give number)
	Male	Female	Total			

[1] Use of this form is not compulsory. However, Contracting Governments do have to fulfil their reporting obligations under Article IX.4 of the Convention.

Table 4. Details of any infractions committed in 2008 (2007/08 Antarctic season). Please list whales by species. The action/penalty should be shown individually for each whale.

No.	Species	Sex	Length	Date	Infraction (specify)[1]	Explanation[2]	Penalty/Action[3]	Investigation complete?[4]
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								

[1] e.g. prohibited species; quota over-run; lactating whale and calf; killing method; outside legal size limits

[2] Please include location in addition to date and source of initial information

[3] Please include both monetary and non-monetary penalties.

[4] If investigation is not complete, please indicate anticipated completion date

Table 5. Details of any unresolved infractions committed in previous years and follow-up actions. The year and No. should match the year in which the infraction was first reported.

Year & No.	Species	Sex	Length	Date	Infraction (specify)[1]	Explanation[2]	Penalty/Action[3]	Investigation complete?[4]

[1] e.g. prohibited species; quota over-run; lactating whale and calf; killing method; outside legal size limits
[2] Please include location in addition to date and source of initial information
[3] Please include both monetary and non-monetary penalties.
[4] If investigation is not complete, please indicate anticipated completion date

APPENDIX D: ST. VINCENT AND THE GRENADINES FIREARMS PERMIT DOCUMENTS

Original Application Form

[F. 1.]

SAINT VINCENT AND THE GRENADINES

FIREARMS ORDINANCE

Application Form

PART 1.

A.

To – Commissioner of Police ....

1. I hereby apply for–
   (a) Licence to keep Firearms
   or (b) Estate Gun Licence
   or (c) Licence to deal in Firearms and Ammunition.
   NOTE–Applicant must delete type of licence NOT required.

   The following particulars are submitted:–

2. Full name of applicant ....

   Age .... Yrs.

3. Address ....
4. Occupation of Applicant ....
5. Brief particulars of land/or Property occupied by the Applicant

   ....

   ....

6. Type of Licence required *i.e.* (a) (b) or (c) ....

   If (b) state Name, Age and Address of Watchman or Servants

   ....

   ....

7. Type of Firearms for which Licence is required:–
   (Description to be full and accurately specifying whether Rifle, Gun, Revolver or Automatic, No. of Barrels, Chambers, Magazine or Repeater, No. of Shots, Bore or Calibre, Maker's Name, Identification Number etc.)

   NOTE:–If Applicant does not intend to keep a firearm but wishes only to use one this fact should be stated by writing in between Maker and Number "Any registered firearm of the type stated."

   Type Calibre

   Maker Number

   The maximum amount of ammunition desired to be kept at any one time is ....

9. My reasons for wishing to acquire and keep such Firearms are:
   1. ....
   2. ....
   3. ....
   4. ....
   5. ....
   6. ....

10. The Firearm required is available at ....

    ....

    Signature of Applicant ....

    Date ....

PART 2.

FOR POLICE USE ONLY

This application is (NOT) approved ....
and a licence may now/not be issued (on payment of the appropriate stamp duty)
in the following terms:–

Type ....

Calibre ....

Make ....

Identification Number ....

Maximum Number of Rounds of Ammunition which may be kept or acquired at any one time .... Calibre

Names of Watchmen or servants approved:–

....

....

....

Commissioner of Police

Date ....

PART 3.

Licence No. .... Issued on ....

Expiring on 31st December, ...

STAMPS TO BE AFFIXED HERE AND CANCELLED BY ISSUING OFFICER

Signed ....

Date ....

Particulars entered in relevant Registers by:–

....
(Name) *(Rank)*

....

Annual Renewal Application Form

SAINT VINCENT AND THE GRENADINES

FIREARMS ORDINANCE

FORM A 1.

APPLICATION FOR RENEWAL.

I.. of ....

- Licence to keep Firearms.
- Estates Gun Licence.
- Licence to Deal in Firearms.
- Delete where inapplicable.

Applicant's Full Name ....

" Address ....

I hereby apply for a renewal of my licence as above for the year. 20 ....

I certify that the gun(s) is/are still in my possession, has/have not been altered in any way and is/are in sound working condition.

Signed ....

Date ....

Stamps to be affixed here and cancelled by Issuing officer.

Licence issued on ....

Signature ....

APPENDIX E: FAROE ISLANDS GRINDADRÁP FORMS

Form to Report Grindadráp to the Government

FRÁGREIÐING UM GRINDADRÁP

TIL

FØROYA LANDSSTÝRI

1. Grind í: ______________________________

   Dagfesting: ____________________

2. Hvar var grindin funnin: ______________________________

   Nær, klokkan: ____________________

3. Grindin varð sædd frá: Landi ☐ Báti ☐

4. Raksturin byrjaði klokkan: ____________________

   Drápið byrjaði klokkan: ____________________

   Drápið endaði klokkan: ____________________

5. a Tal av bátum í rakstrinum: ____________________

   b Tal av fólki á landi: ____________________

6. a Varð loyvi givið at høgga frá báti: Ja ☐ Nei ☐

   b Varð høgt frá báti? Ja ☐ Nei ☐

   c Varð hvalvákn nýtt? Ja ☐ Nei ☐

   d Hvussu stórur partur av hvalunum gjørdi landgongd: __________

   e Hvussu stórur partur varð høgdur og drigin uppá turt: __________

7. Tal av hvalum: ____________________

8. Tal av skinnum: ____________________

____

sýslumaður

At senda saman við grindaroknskapinum til Føroya Landsstýri, og eitt eintak til: Føroya Náttúrugripasavn, Hammershaimbsgøta 13, 100 Tórshavn.

HNJB 982058

Form for Metingarmenn to Enter Measured Data

Blað til metingarmenninar at fylla út

Hetta blað skal sendast til:

Føroya Náttúrugripasavn, Hammershaimbsgøta 13, 100 Tórshavn

Dagfesting: ______________ **Grind í:** ______________________________

Hvalur nr.	Skinn	Hannur	Hon	Longd cm	Viðmerkingar T. d. Svullir, mjólkar, kviðin o. t.

HNJB 982057

Appendix F: STANDARD PROTEST LETTER RESPONSE FROM DANISH GOVERNMENT

Concerning protest about catching of pilot whales in the Faroe Islands

The Danish Foreign Ministry have received your letter where you express your feelings caused by mail you have received which has contained selected pictures from the catching of pilot whales in the Faroe Islands, accompanied by inflammatory comments, and ludicrous assertions, such as the hunt being some sort of 'adulthood ritual'.
We take note of the fact that you have found the above mentioned pictures, and the accompanying text, disturbing. However, before passing any judgment one will need to supplement a possibly negative aesthetic first hand impression, and false information received, with considerations of the real facts of the matter as well as of a number of issues of principle.
Facts about the Faroese pilot whale drive fishery can be obtained from the homepage www.whaling.fo. There one may find a number of interesting facts, including the following:

- The purpose of the catch is to produce food,
- The catch is regulated by the authorities,
- The catch is biologically sustainable,
- The Faroese authorities take the animal welfare aspect of the catch seriously.

It may also be useful to consider this way of providing food in a broader context:

- The animal welfare issue: How does this whale catch compare with other hunts of large mammals in the wild, with the treatment of farmed animals throughout their life cycle, and of animals which are regarded as a nuisance;
- Ethics of food production: Does a meal of pilot whale meat represent more or less cumulated man-made animal pain than dishes normally eaten in one's own country?
- Geographic and nutritional factors, availability of alternative food sources, notably in islands and remote coastal areas, not least in arctic or sub-arctic parts of the world.
- Cultural diversity, and tolerance/intolerance towards people with different food preferences and/or different attitudes towards different animals;
- Sense of proportions: How important is this particular issue compared to other environmental or animal welfare concerns facing the contemporary world?

The Faroe Islands have autonomy within the Kingdom of Denmark. The islands are not included in Denmark's membership of the European Union. Affairs regarding industry, agriculture, the environment, fishing and whaling, are subject to Faroese autonomy.
If anyone, after having acquainted oneself with the facts of the matter, should want to address the Faroese authorities regarding pilot whaling, the e-mail address of the Foreign Department of the Faroese Government is mfa@mfa.fo; The e-mail address of the Faroese department of Fisheries and Maritime Affairs is fisk@fisk.fo;

Yours sincerely

Árni Olafsson
Specialist on Faroe Islands Affairs

APPENDIX G: ST. VINCENT WHALING RECORDS

Note: the 2007-2009 records are estimates extrapolated from the records of Samuel Hazelwood. The sources for the historical records are as follows:

Period	Source
1962-1970	Caldwell and Caldwell 1971
1971-1983	Price 1985; Adams 1994
1990-1992	Scott 1995

Year	Pilot Whales	Dolphins	Total Cetaceans	Boats in Operation
1962	97	200 (est.)	297	16
1963	425	200 (est.)	625	16
1964	275	200 (est.)	475	16
1965	183	200 (est.)	383	14
1966	323	200 (est.)	523	14
1967	269	200 (est.)	469	14
1968	387	200 (est.)	587	12
1969	176	200 (est.)	376	12
1970	232	200 (est.)	432	12
1971	153	200 (est.)	353	10
1972	155	200 (est.)	355	8
1973	151	200 (est.)	351	4
1974	86	200 (est.)	286	3
1975	135			4
1976	117			4
1977	65			4
1978	52	55	107	3
1979	25	113	138	2
1980	9	17	26	2
1981	39	21	60	2
1982	13	34	47	3
1983	82	41	123	4
…				
1990	55	104	159	2
1991	46	71	117	2
1992	39	62	101	2
1993				2
…				
2001				4
…				
2007	96	432	528	3
2008	126	273	399	3
2009	104	564	668	3
2010				4

APPENDIX H: FAROE ISLANDS WHALING RECORDS

Source: National Whaling Statistics, Føroya Náttúrugripasavn and Dorete Bloch.

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1584			4		4
1585					0
1586					0
1587	300				300
1588	115				115
1589	0				0
1590	0				0
1591	0				0
1592	0				0
1593	0				0
1594	0				0
1595	0				0
1596	0				0
1597	0				0
1598	0				0
1599	90				90
1600	24				24
1601	0				0
1602	60				60
1603	0				0
1604	0				0
1605	0				0
1606	0				0
1607	0				0
1608	0				0
1609	0				0
1610	0				0
1611	0				0
1612	0				0
1613	80				80
1614	159				159
1615	507				507
1616	280				280
1617	120				120
1618	210		2		212
1619	155		0		155
1620	291		0		291
1621	1000		0		1000

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1622	200		6		206
1623	32		2		34
1624	180		0		180
1625	0		0		0
1626	103		1		104
1627	0		0		0
1628	200		0		200
1629	20		0		20
1630	87		0		87
1631	0		3		3
1632	0		0		0
1633	0		1		1
1634	0		1		1
1635	400		0		400
1636	0		0		0
1637	60		2		62
1638	56		0		56
…	No data				
1664	1000		0		1000
…	No data				
1709	1448		5		1453
1710	1430		0		1430
1711	715		4		719
1712	385		0		385
1713	1090		1		1091
1714	635		0		635
1715	625		3		628
1716	728		3		731
1717	720		2		722
1718	409		0		409
1719	726		7		733
1720	803		5		808
1721	905		3		908
1722	317		2		319
1723	1320		6		1326
1724	1063		1		1064
1725	1359		2		1361
1726	688		4		692
1727	835		0		835
1728	236		4		240
1729	1423		2		1425

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1730	915		0		915
1731	2188		0		2188
1732	277		3		280
1733	1186		0		1186
1734	696		3		699
1735	559		1		560
1736	391		0		391
1737	350		3		353
1738	214		3		217
1739	313		0		313
1740	0		0		0
1741	1460		1		1461
1742	0		2		2
1743	622		0		622
1744	1017		0		1017
1745	0		0		0
1746	100		6		106
1747	647		0		647
1748	165		3		168
1749	212		0		212
1750	0		1		1
1751	0		0		0
1752	194		2		196
1753	0		0		0
1754	172		3		175
1755	0		1		1
1756	0		0		0
1757	0		0		0
1758	0		0		0
1759	0		0		0
1760	0		0		0
1761	0		0		0
1762	0		0		0
1763	0		1		1
1764	0		0		0
1765	0		0		0
1766	0		0		0
1767	0		3		3
1768	0		0		0
1769	0		0		0
1770	16		0		16

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1771	0		1		1
1772	0		0		0
1773	0		0		0
1774	0		0		0
1775	0		0		0
1776	743		0		743
1777	0		1		1
1778	0		3		3
1779	0		0		0
1780	0		0		0
1781	434		0		434
1782	50		2		52
1783	0		0		0
1784	0		0		0
1785	0		0		0
1786	0		0		0
1787	262		0		262
1788	0		0		0
1789	0		0		0
1790	0		0		0
1791	0		0		0
1792	152		0		152
1793	148		0		148
1794	288		0		288
1795	0		0		0
1796	545		3		548
1797	100		0		100
1798	91		0		91
1799	1370		0		1370
1800	53		0		53
1801	154		0		154
1802	752		1		753
1803	1063		2	13	1078
1804	953		0	0	953
1805	206		0	0	206
1806	550		0	0	550
1807	367		1	0	368
1808	1145		0	0	1145
1809	226		0	0	226
1810	429		0	0	429
1811	510		0	0	510

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1812	834		0	35	869
1813	281		0	0	281
1814	261		2	0	263
1815	543		1	0	544
1816	812		5	0	817
1817	652		4	0	656
1818	917		0	0	917
1819	1448		7	0	1455
1820	787		0	0	787
1821	263		3	0	266
1822	1647		3	0	1650
1823	1098		0	0	1098
1824	442		0	0	442
1825	1935		2	0	1937
1826	714		6	6	726
1827	711		0	0	711
1828	725		0	0	725
1829	556		2	0	558
1830	1149		2	0	1151
1831	695		2	0	697
1832	391		0	0	391
1833	1455		2	0	1457
1834	1569		2	0	1571
1835	1338		8	0	1346
1836	1183		2	0	1185
1837	1221		0	0	1221
1838	1332		2	0	1334
1839	1614		7	0	1621
1840	2193		0	0	2193
1841	1651		5	0	1656
1842	645		1	0	646
1843	3142		4	0	3146
1844	2171		2	0	2173
1845	2541		6	0	2547
1846	1039		6	0	1045
1847	2675		4	5	2684
1848	1181		1	7	1189
1849	769		3	0	772
1850	502		5	0	507
1851	474		1	3	478
1852	2230		6	0	2236

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1853	1120		14	0	1134
1854	794		0	9	803
1855	1368		9	4	1381
1856	411		7	2	420
1857	328		6	0	334
1858	757		6	44	807
1859	836		3	0	839
1860	640		9	0	649
1861	341		12	3	356
1862	1129		6	1	1136
1863	709		8	2	719
1864	574		14	0	588
1865	1269		4	0	1273
1866	1758		4	4	1766
1867	398		2	5	405
1868	478		10	0	488
1869	716		6	1	723
1870	842		6	4	852
1871	796		7	1	804
1872	2315	26	12	41	2394
1873	1682	0	2	0	1684
1874	652	0	16	0	668
1875	780	0	2	0	782
1876	802	0	10	0	812
1877	383	0	7	0	390
1878	329	0	3	0	332
1879	1920	0	9	0	1929
1880	628	0	11	0	639
1881	390	0	7	19	416
1882	521	0	14	0	535
1883	151	0	12	0	163
1884	368	0	7	32	407
1885	977	0	2	0	979
1886	734	0	9	0	743
1887	854	0	12	0	866
1888	476	0	29	0	505
1889	695	6	1	1	703
1890	0	0	5	0	5
1891	0	0	4	0	4
1892	34	1	9	0	44
1893	840	0	11	0	851

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1894	498	0	7	0	505
1895	542	0	1	0	543
1896	128	0	19	0	147
1897	342	0	4	0	346
1898	1336	0	2	409	1747
1899	2377	0	5	0	2382
1900	797	0	8	0	805
1901	0	0	2	2	4
1902	481	10	4	0	495
1903	212	0	4	0	216
1904	566	308	0	2	876
1905	221	143	11	0	375
1906	414	0	0	0	414
1907	242	27	4	0	273
1908	1793	0	0	0	1793
1909	985	0	5	0	990
1910	1324	6	4	0	1334
1911	1650	237	0	0	1887
1912	669	0	0	0	669
1913	168	0	2	0	170
1914	291	0	0	0	291
1915	1203	0	1	0	1204
1916	397	0	0	0	397
1917	263	0	0	1	264
1918	848	22	2	0	872
1919	153	0	0	0	153
1920	802	2	0	0	804
1921	1076	0	0	0	1076
1922	473	0	0	0	473
1923	1047	0	0	1	1048
1924	0	3	0	0	3
1925	468	0	0	0	468
1926	347	0	3	0	350
1927	0	0	1	0	1
1928	480	335	2	0	817
1929	17	344	2	0	363
1930	266	80	0	0	346
1931	2386	20	2	0	2408
1932	1282	172	0	0	1454
1933	959	110	0	0	1069
1934	178	30	1	0	209

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1935	652	0	2	0	654
1936	1633	37	0	0	1670
1937	886	0	5	0	891
1938	2094	0	0	0	2094
1939	3384	0	0	0	3384
1940	2847	226	3	0	3076
1941	4482	0	0	7	4489
1942	1864	0	1	0	1865
1943	1047	0	2	0	1049
1944	1386	156	0	0	1542
1945	1555	0	0	0	1555
1946	1040	0	4	0	1044
1947	1839	0	3	0	1842
1948	587	440	0	0	1027
1949	957	0	0	0	957
1950	569	0	0	0	569
1951	2786	20	0	0	2806
1952	1242	0	0	0	1242
1953	2099	0	2	0	2101
1954	2015	0	1	0	2016
1955	885	0	0	0	885
1956	1843	0	0	0	1843
1957	2105	0	1	0	2106
1958	2619	0	0	0	2619
1959	1428	0	0	0	1428
1960	1783	137	0	40	1960
1961	1892	27	0	59	1978
1962	1764	0	0	0	1764
1963	2204	0	3	16	2223
1964	1364	0	3	17	1384
1965	1620	176	0	4	1800
1966	1485	0	4	7	1496
1967	1973	0	3	0	1976
1968	1650	9	0	10	1669
1969	1394	0	0	0	1394
1970	388	59	1	0	448
1971	1015	50	0	0	1065
1972	511	0	0	0	511
1973	1050	0	0	0	1050
1974	679	0	4	0	683
1975	1086	5	0	0	1091

Faroese Whaling Records, continued

Year	Pilot Whale (*Globicephala melas*)	Atlantic White-sided Dolphin (*Lagenorhynchus acutus*)	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Bottlenose Dolphin (*Tursiops truncates*)	Total Cetaceans
1976	532	14	0	0	546
1977	897	30	0	2	929
1978	1192	0	2	0	1194
1979	1674	0	0	14	1688
1980	2775	8	0	0	2783
1981	2909	0	3	2	2914
1982	2649	0	3	0	2652
1983	1685	10	0	0	1695
1984	1926	0	0	0	1926
1985	2596	32	0	0	2628
1986	1676	185	0	0	1861
1987	1450	76	0	1	1527
1988	1738	603	3	11	2355
1989	1260	0	2	0	1262
1990	917	55	0	0	972
1991	722	0	0	62	784
1992	1572	47	2	0	1621
1993	808	377	8	16	1209
1994	1201	263	0	8	1472
1995	227	157	5	0	389
1996	1513	357	0	21	1891
1997	1162	350	0	0	1512
1998	812	438	0	0	1250
1999	607	0	0	0	607
2000	588	265	3	0	856
2001	918	546	1	13	1478
2002	626	773	6	11	1416
2003	503	186	1	3	693
2004	1012	333	0	0	1345
2005	302	312	0	0	614
2006	856	617	0	17	1490
2007	633	0	3	0	636
2008	0	1	7	1	9
2009	287	144	2	1	434

VITA

Russell Fielding was born in Tampa, Florida, in 1977. His love for the sea began at an early age and grew into an academic and ecological interest. He received a Bachelor of Science degree in computer science from the University of Florida in 2000. After three years of working and traveling, he began studying geography at the postgraduate level at the University of Montana, where he earned a Master of Arts degree. Following a one year Fulbright fellowship at the University of Prince Edward Island in Canada, he enrolled in the doctoral program in geography at Louisiana State University.

The nature of his fieldwork for the Master of Arts and Doctor of Philosophy degrees has followed the *Heimatkunde-Auslandskunde* pattern, traditional within the field of geography, in which the first postgraduate research project is conducted within the student's home region; the second is based far away, often within a much different cultural and physical environment. Russell's Master of Arts thesis was a comparative study of the geographical differences among three islands off the Gulf Coast of Florida, near Tampa: one linked by causeway to the mainland, another with regular ferry service, and the third only accessible by private vessel. His doctoral fieldwork, the basis for this dissertation, was carried out much further afield, in the Caribbean and North Atlantic. Both projects have instilled in him what will likely become a lifelong interest in questions of nature and society, especially in the coastal and insular areas of the Atlantic.