

2006

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Neves-Graça, Katja. "Politics of Environmentalism and Ecological Knowledge at the Intersection of Local and Global Processes." *Journal of Ecological Anthropology* 10, no. 1 (2006): 19-32.

Available at: <https://digitalcommons.usf.edu/jea/vol10/iss1/2>

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Politics of Environmentalism and Ecological Knowledge at the Intersection of Local and Global Processes

KATJA NEVES-GRAÇA

Abstract

This article scrutinizes the intersection of globalized and localized environmentalism in Lajes do Pico, Azores, Portugal, at the historical juncture when whale-watching superseded whale hunting in this village. In so doing, the article explains how localized environmentalism—including the ecological knowledges and practices of local inhabitants—was reproduced, learned, and transformed within the context of globalized environmental concerns, and vice versa. Using ethnographic materials I collected in Lajes do Pico between 1998 and 2000, I suggest that, rather than constituting two clearly distinct types of knowledge, through comparison and dialogical articulation local and scientific knowledge are typically locked in a process of mutual knowledge formation. This entailed the emergence of 'glo-cal' meta-knowledge context for environmental dilemmas. Ultimately, both former whalers and environmentalist scientists overcame some of their differences through mutual learning—an issue that has not often been explored within the scholarly literature on the relation between indigenous and scientific knowledge.

Introduction

Anthropologists have long been concerned with dismantling dichotomies between scientific and local-traditional knowledge instead of taking their dualistic connotation for granted. Lévi-Strauss (1966:3-5), for instance, pointed out that non-westerners frequently comprehend and relate to the world in ways that approximate those that are characteristic of western scientists (see also Saaristo 1998). Agrawal (1995a, 1995b) crystallized the critique of distinction between native (local specific) and scientific (abstract-general) knowledge to unveil the fallacy of these distinctions. It became clear that, whether by portraying the former as the manifestation of a harmonious pristine relation with nature, or by reifying the later as a product of efficacious intervention and control, processes of knowing were being objectified into knowledge typologies (Berlung 1998; Edgerton 1992; Ingold 2000:13-18, 27-34, 43-47). It is more accurate and predictive to assert that traditional knowledge and scientific knowledge processes will display varying degrees of similarity, difference and potential overlap—depending on context and comparison criteria—and that these relations will change through time.

While traditional and scientific knowledge are distinguishable, they are not opposites. As Berkes (1999:9-10) points out, indigenous ecological knowledge is inextricably related to the cultural, social, political, and material context from which it emerges. Unlike scientific knowledge, traditional ecological knowledge seems incoherent when presented abstractly (Berkes 1999). Nevertheless, even though abstract science is quite comprehensible universally, it too can be better understood once situated in the socio-cultural-historical settings of its production (e.g., Bourdieu 1988:21-35; Gould 2003:13-25, 113-129; Kuhn 1970:4-7, 23-25; Latour 1993:1-9, 130-132). After all, as Tsing has recently shown, universals are produced at specific historical, spatial and cultural junctures. Subsequently, these universals move across these junctures thus mobilizing new constituencies and ideas (Tsing 2005:7).

Political and economic elites often do objectify scientific knowledge to dislodge and disempower place-specific processes of environmental knowing and practices (e.g., Beck 1992: 19-89, 1995:109, 128-130, 138-139; Brush 1993; Gare 2002; Giddens 1990:83-89; Habermans 2005:36-49; Ingold 2000:314-315,

329; Shiva 1997:1-11). On the other hand, as the literature on indigenous people and conservation initiatives demonstrates, aspects of local knowledge and ecological embeddedness are often selectively mobilized towards the attainment of specific political and/or conservationist goals within increasingly globalized contexts (e.g., Igoe 2005:378; Niezen 2003:181-191). Such studies suggest that we must try to account for that productive moment of friction where universals and particulars meet to produce effects with which we live (Tsing 2005:4). Methodologically, this can be attained by working with ethnographic methods that account for knowledge that circulates globally, wherein local and global knowledge, identities and material effects are created, circulated and mutually transformed. Choy (2005:6-7,10) refers to the process of mutually constituting political engagement as “translation in collaboration,” whereby various social agents present their knowledge as counterexpertise, thus promoting further provisional collaborations and articulations, whether positive, negative or otherwise (see also West 2005).

For the past two decades a growing number of scholars have been making crucial ethnographic and theoretical contributions towards a better understanding of the relations that exist between emergent forms of traditional ecological knowledge and the management of ecosystems across different levels of governance—local and global. They have shown that in many places of the world this is an essential condition for achieving and maintaining the resiliency of ecosystems (e.g., Agrawal 2005:89-90, 193-194, 230; Berkes and Folke 2000:8-15; Berkes 2002:295-307; Gunderson and Holling 2002:25-62; Sandberg and Sorlin 1998:1-14). They account for the collaborations or processes of co-management that take place between, on the one hand, people with local knowledge of environments obtained through years of practical engagement with surroundings (e.g., Sillitoe 1996:3-24, 1998) and, on the other hand, practices of environmental management. These practices, in turn, are often influenced by the relatively generalist policies of international agencies.

The goal of this paper is to analyze the interaction of local traditional and scientific knowledge pertaining to whale hunting by exploring processes

of ‘abduction’ between systems of knowing, a term developed by Gregory Bateson, that Harries-Jones describes as “... a means of undertaking formal comparisons through contrasts, ratios, divergences of form and convergences” (1995:177). An inquiry into such an interaction between knowledge systems goes beyond the mere analysis of flows of information or semiotic meaning across socio-cultural and political settings since it allows us to account for the emergence of meta-context for further collaboration and knowledge formation. Through comparison of different systems of knowledge, people incorporate ideas from one system to another. This occurs when people notice that notions from an alternative knowledge system actually provide insights that enrich their own. It is this process of learning through the co-optation of ideas across knowledge systems that Bateson called abduction.

Fieldwork in Lajes do Pico

I began fieldwork in Lajes do Pico in 1998 at the height of debates of whale-watching based on the experiences of former whalers versus biological science-informed whale-watching. I was cautious not to accept dichotomies between local and scientific knowledge—which were obviously being constructed around the Parliament’s efforts to regulate whale-watching—and tried to focus on their emergence and articulation. At first, former whale hunters confronted me with the insistence that their knowledge of sperm whales was completely different from that of scientists, most of whom were marine biologists. As I increasingly became immersed in the world of these former whalers, I realized that on other occasions they did not talk of scientific knowledge as opposite to theirs. Instead they presented scientific knowledge as the product of a partnership where both sides had learned collaboratively. I later went through a similar process with marine biologists and people who felt that science should inform whale-watching. Initially, they would distance themselves from the knowledge of former whale hunters. It was only once our conversations reached a stage where deeper reflection was allowed that they admitted to parallels or similarities across differently based knowledges.

During the formation of whale-watching legislation, different participants presented and articulated local or scientific views as forms of counterexpertise concerning the ecological dilemmas of whale-watching in the Azores (Neves-Graça 2004). The present article explores processes of knowledge formation among various constituencies as they collaborated through friction (Tsing 2005). These processes were far less visible than the more public antagonist relations. To make the knowledge formation processes visible—in addition to in-depth interviewing and participant observation—I relied on collecting life histories, conducting extensive unstructured group discussion-interviewing (mostly informal discussions at cafés), gathering oral narratives, and doing historical archival research of newspaper articles, whaling business logs and accounts, personal letters and unedited video, and audio tapes recorded by various local people. Once I began to piece together these various sources of information—and thus track knowledge that circulates globally—I was able to produce a sketch of those productive moments when

localized whaler knowledge and globalized scientific knowledge met.¹

The first impression I had when I traveled to Lajes do Pico for a short visit in 1996 was that whale-watching seemed to be well integrated in this village. The landmarks and former institutions of whale hunting existed side-by-side with those related to whale-watching. Whale-watching firms included visits to the local Whalers' Museum² in their trip packages,³ while the museum had a small section dedicated to whale-watching. Whale-watching companies even rely mainly on local labor, hiring skippers, knowledgeable experts (mainly biologists), people who took care of the nautical equipment, accountants, and people to spot whales—often former whale hunters. In three companies, the proportion of former whale hunters was four or five out of nine workers, whereas in most leading companies, two out of ten was common. I refer to the three companies with greater whaler involvement as 'dissident' companies.

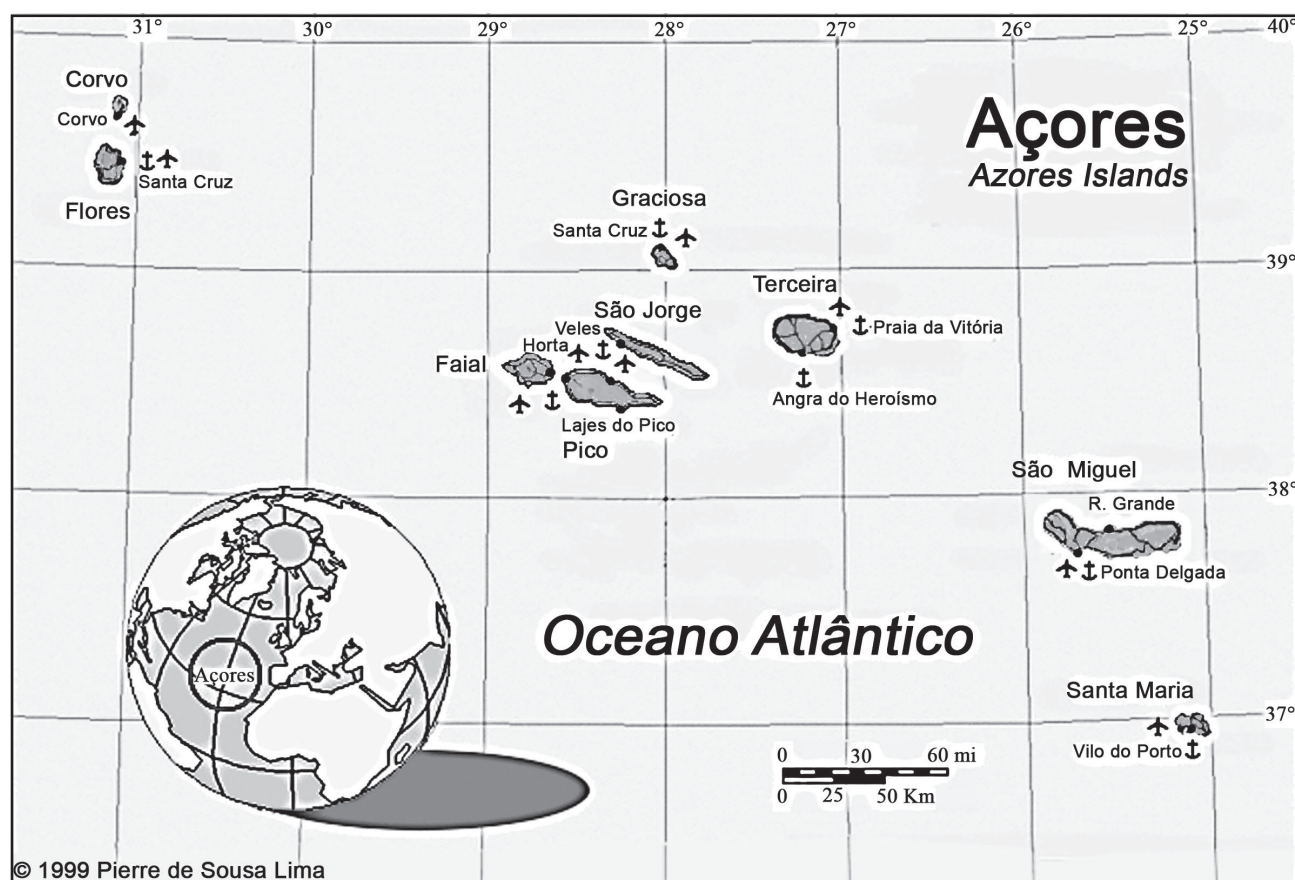


Figure 1. Location of the Azore Islands in the Atlantic Ocean.

The Intersection of Local and Global Ecological Knowledge

The Introduction of Whale-Watching in the Azores

The Azores islands are a Portuguese archipelago situated in the mid-Atlantic one-third of the distance between Lisbon and New York (see Figure 1). The Portuguese have inhabited the nine Azorean islands since the 15th century. The archipelago's economic history can be told as a succession of cash-cropping regimens for export to Portugal's mainland and colonies. Sperm whale oil was one of the main Azorean exports of the late 19th to early 20th centuries, especially in the central Azores (islands of Terceira, Graciosa, Sao Jorge, Pico, and Faial).

Up until the 1950s, the main driver of Pico's economy was an assembly of products derived from sperm whales. Men from Pico's two main villages practiced whale hunting (Cais do Pico and Lajes do Pico). It was in Lajes do Pico that the practice of whale-watching began in 1989, after whale hunting had come to a halt in 1983. Soon whale-watching became so popular in the Azores, especially in Lajes do Pico (parish of around 2000 people, municipality of around 5000 people in 2001) and the neighboring island of Faial, that it was necessary to regulate this activity in order to avoid overcrowding the cetaceans' environment with boats of tourists.

Consequently, in 1998 the Azorean Parliament instituted a committee with the mandate of producing the needed law for regulating whale-watching. This goal became an issue of contention when the government and the leading whale-watching companies turned to scientific knowledge as their main point of reference, while an alternative group of whale-watching companies turned to local knowledge. The latter contended that no one knew the whales of Lajes do Pico better than the former whale hunters and that, therefore, their knowledge should inform the new law (see Neves-Graça 2004 for a detailed analysis of this process). At the time there were about 12 whale-watching companies operating in the Azores. The whale-watching companies that I label 'leading companies' were those that had the largest volume of clients per year, up to 6,000 people each. Of these companies one was operating out of Lajes do Pico, one from S. Miguel island, and

another out of Faial island. Of the remaining nine, about six followed the commercial model of the leading companies, and three tried to implement an alternative model described later in this paper. I am calling these three companies dissident as a reminder that they resisted the dominant view of whale-watching that was first promoted in the Azores.

Whale-watching put Lajes on the map of international tourism, and this had a major impact upon the economy of the village, as has been the case for many other places in the world (e.g., Curtin 2003; Hoyt 2001; Parsons et al. 2003; Pendelton 2005). However, in spite of the marketing efforts of the founders of Deplhus³—the first whale-watching company in Lajes—the people of Lajes did not see economic benefits of this activity immediately. It took a few years for the Lajence population to truly comprehend that they stood to obtain financial gain through whale-watching.

Below the surface there had been a history of resistance to the introduction of the first whale-watching company in the village. Many people in Lajes resented the fact that a foreigner co-founded (with his wife⁴) the Delphus in 1989. This was not so much because of his personal characteristics or those of his wife since the people of Lajes initially received them very warmly.

One reason why the people of Lajes came to see the owner of Delphus as persona non grata was that while the foreigner⁵ quickly obtained governmental subsidized loans for his business venture, there had been an unsuccessful local attempt to develop whale-watching in the early 1980s when it became obvious to the Lajence that whale hunting would soon become illegal. According to the people of Lajes the early effort had failed because the Azorean government had not provided the financial support they required to adapt the whaling patrimony for the purposes of whale-watching. Indeed, the Azorean Bureau of Tourism did not develop the legal bureaucratic mechanisms to provide monetary support for investments in the tourism sector until the mid 1980s, when Portugal became a member of the European Union and received new development funds.

A second aspect of the problem leading to the perception that Delphus' interests were opposed to local interests was that its founders strongly defended environmental ideals and articulated them in ways the people of Lajes were not comfortable with. During the last years of whale hunting, the international mass media and environmental movements had treated Lajes harshly—as one of the last places in the world where whales were still hunted and killed. The whale hunters of Lajes told me often that a few environmentalists (whom they identified as Green Peace and the International Fund for Animal Welfare representatives) had called them murderers of whales (*assassinos de baleias*). The whalers thought that this label was extremely unfair since they had only hunted whales out of extreme necessity. Their hunting was highly conservative, in that it aimed for 'bulls' and avoided approaching pods where females and their offspring socialized. This was because younger whales do not yield enough blubber to be worth the effort, and hunting them is dangerous due to their capability for energetic defense.

Bull, in turn, is the term for old male sperm whales that no longer mated or socialized—preferred prey because they accumulate the highest levels of blubber. In addition, the number of whales hunted in Lajes was very limited even at the height of this cycle in the village's economy, circa 1947, partly because of the traditional methods that the whalers used (which in turn meant that they could only hunt when the weather was calm—in the summer), and partly because the local factories could not process more than one or two whales per day. In the Azores whales were hunted from canoes navigated by crews of seven men. They were pulled out to sea either by an engine boat or on sail while the final approach was on oars. Then one man would stand at the prow of the boat while the rest made sure the canoe moved side by side with the whale so that he would thus harpoon the whale. Once harpooned the whale would dive, taking with him a rope tied to the harpoon. Whalers waited for the whale to become tired and submerge in order to approach the mammal and pierce it to death. All of this required very accurate knowledge of whale behavior. The canoes were precarious and mistakes were costly or fatal (see Clarke 1954; Neves-Graça 2005a; Mendonca 1993; Ruspoli 1955; Venables 1969 for

detailed descriptions of whale hunting in the Azores). Basically, when the founders of Delphus talked about increasing local ecological literacy and sensitivity, the people of Lajes took it as an attack on their culture and worldview. Many people in Lajes interpreted their voicing of cetacean conservationist goals as a condemnation of the whale-hunting legacy.

By the time I left the field in the summer of 2000 (over ten years after Delphus was founded), the people of Lajes saw whale-watching as the village's tribute to the legacy of whaling. It was mainly when three Lajence partners created a local whale-watching company Poseidom in 1997, and employed five former whale hunters, that the people of Lajes came to slowly accept this activity in the village. The Lajence were especially pleased to see that for the first time since the introduction of whale-watching in Pico former whalers worked as skippers. Poseidom presented its image as a company inspired by the philosophies of former whale hunters. Poseidom seemed to provide a continuation for the legacy of the knowledge that the whalers had obtained during the whale-hunting period.

Ecological Knowledge and Conflict

During the Biannual for Whales and Dolphins in 1998—a set of conferences organized by local tourism operators and government officials—that initial hesitation to the presence of a foreign whale-watching firm in Lajes re-surfaced as a conflict between different forms of ecological understandings of cetacea and related practices. These issues are the topics around which the articulation of local and scientific knowledge would play out.

First, different people involved in whale-watching did not agree on how to utilize the oceanic surroundings of Lajes ecologically as an economic resource. While the leading whale-watching companies relied mainly on zodiac boats for their operations, a small group of dissident (see footnote 6) companies argued that cetaceans, especially whales, are too sensitive to the underwater noise they produce⁶. These dissident companies argued that only boats with inboard engines should be used in the proximity of cetaceans since they produce a muffled sound instead of the high pitch that characterizes most outboard

engines. One of these companies even used a prototype that relied on a system of water jets to decrease sound pollution even further.

Second, a major topic of disagreement was whether the oceanic surroundings of Lajes constituted a nursery area for sperm whales or not. In the event that it did, the dissident companies argued that whale-watching activities should follow as precautionary a perspective of interacting with whales as carefully as possible. The leading whale-watching companies argued in turn, that in spite of the occasional birth of a sperm whale, Lajes was not a nursery area for this species.

Other issues that the various groups discussed concerned the speed at which they should approach cetaceans and possible distances for safe viewing. The leading companies, informed by mainstream scientists and information from places like New Zealand, Australia and Hawaii, argued that boats should stay about 100 to 150 meters away from whales and only approach whales from the side where they could spot the boats. The dissident companies argued that keeping metric distances should not be the main concern. They argued that what mattered the most was to maneuver the boats in ways that took into account the contingencies of each encounter with the whales. This meant that skippers had to understand and be responsive to the whales' behavior by adjusting to it. On this topic, the dissident companies were close to the whale hunters' views on human-whale interaction. This similarity of views was itself the result of collaborative friction where both company owners and former whaler had learned from one another.

The various groups involved (business owners, government officials, scientists, local inhabitants) did agree that access should be limited for the sake of the economic sustainability of whale-watching, and for the sake of the cetaceans. But again they disagreed when it came to defining the criteria for access. For example, some proposed that all existing companies should obtain permits automatically, although these would be renewed on a temporal basis that was not yet defined. The dissidents proposed that only whale-watching companies operating boats that produced little noise pollution should have access. Another proposal recommended that in order to obtain a whale-watching

permit, companies would have to hire a marine biologist and that this person should implement educational programs for whale-watching operators and clients.

The people of Lajes drew the lines of this conflict around a distinction between local and foreign people which, in turn, reflected different forms of ecological knowledge: between local traditional knowledge and abstract science, as they put it⁷. This tension was exacerbated when the existing companies became associated with these two different connotations of ecological understanding. The leading companies with scientific expert knowledge, and the dissident companies with local knowledge. These divisions were much more related to the philosophical differences of company owners than to the educational and cultural differences between the employees who worked for these companies. I substantiate this claim next by providing more detail on how the people involved conceptualized the differences between local and scientific knowledge.

What the people of Lajes understood as local knowledge was premised on the views put forth by former whale hunters. First and foremost, the whalers of Lajes do Pico saw sperm whales as a crucial economic resource—even though they had not hunted them since 1983. Throughout the one hundred year history of whale hunting, successive generations of whalers passed on their skills and came to think of relationships between humans and cetaceans as based on communicative mutual understanding. I have argued elsewhere that this constituted an aesthetic appreciation of whales through which the whale hunters identified deeply with their prey (Neves-Graça 2005a). The whalers of Lajes often said that the local relation between humans and cetacea was one “whereby whales, the oceanic environment, and humans were in tune” with each other.

These whalers had to try to assess and predict whale behavior. They knew where to find whales after they had submerged for food, how to maneuver the whaling canoes in ways that these cetaceans did not consider threatening, or to recognize from the distance when whales swimming in a group were trying to protect their offspring. As a consequence, Azorean whalers were very skillful in knowing how to approach sperm whales in a seemingly

non-threatening manner, up until the final moment of harpooning them. Those who became skippers for whale-watching companies after 1989 applied this knowledge to their new activities. The dissident whale-watching companies had hired former whale hunters as skippers though most other companies employed them as *vigias*⁸ to look out for cetacea and direct the boats to them.

The first whale-watching operators, and subsequently the remaining majority of leading companies, departed from the locally developed knowledge of cetacea. Instead they incorporated international scientific knowledge as the privileged means to know about the relationships between humans and the oceanic biotic-physical surroundings of Lajes. In this context, international scientific knowledge was construed as that produced by researchers affiliated with world level universities, and who had published widely in academic journals. They focused mostly on the biology of cetaceans from the perspective of their physical constitution and less commonly on the general traits of the species' behavior. This was clearly observable during the Biannual conference, for example, in scientists' presentations about sperm whales. In fact, at the time, the existing publications on sperm whales in the Azores were directly related to knowledge that had been acquired through the hunting and dissection of whales (Clarke 1954; Goncalves 1996; Gordon 1979; Magalhaes 2000). Unlike whale hunters, they did not focus on whale interactions with humans and whale-watching vessels or on the specificities of the behaviors of whales who resided in the Azores. Hence, this knowledge was seen as having a much higher degree of universality; for example, statement about sperm whales off of New Zealand was taken to be immediately transferable to the Azorean setting.

It was in the fall of 1998 that a group of local agents (tourism operators and government officials) organized the set of conferences titled "The First Biannual for Whales and Dolphins" in order to prepare a draft for the new law that would legislate whale-watching. The Biannual thus co-opted the debate between local and scientific knowledge on how to define proper human relations to cetacea in Lajes. During the Biannual, the parliamentary committee

presented the first draft for whale-watching regulations in the Azores. The following interest-group representatives constituted this committee: members of the regional ministry of tourism, one representative of the regional ministry of the environment, representatives of the ruling party, scientists from the university of the Azores, and representatives from the leading whale-watching companies. Representatives of the dissident whale-watching companies tried to join but their participation in the committee was rendered ad hoc. No whale hunters were invited or allowed to join.

With the additional support of regional and island level politicians, intellectuals (school teachers and writers) and the main local business owners, the Biannual for Whales became an arena for the creation of an official view of the relationships between humans and cetacea in Lajes, relying more heavily on modern scientific findings than on local ecological knowledge of former whale hunters. Of the conference's approximately 12 sessions, two were dedicated to the theme of whale hunting, and there was no space for the whalers to present their own views on any topic, much less to present their views on whale-watching practices. When one of the representatives of one of the dissident companies—who had not been invited to speak at the conference—walked up to the stage to argue for an alternative view of human-cetacean interaction, and suggested that some of the whalers' knowledge might be of use, she was quickly asked to return to her seat due to time constraints in conference scheduling.

These efforts by the local economic and political elites to dichotomize local traditional/indigenous ecological knowledge and scientific knowledge—although touting that the Biannual promoted an alliance of former whale hunters—were challenged by the dissident whale-watching firms (including some from other countries) and by some international scientists who identified themselves as deep ecologists to distance themselves from Azorean University and other mainstream scientists there. It is in this context that the conflict over the definition of ecological thinking and acting within the Lajence ecological system expanded well beyond the Lajence setting and into regional and international arenas.

Collaborating Through Friction, and the Emergence of Meta-context

Although the organizers of the Biannual presented the conference to the public as a forum for celebrating the knowledge of scientific experts, politicians, intellectuals and economic operators, the conference created the space for alternative voices to resist the discourses it produced. But rather than presume the centrality and domination of scientific views clashing against local understandings, it is crucial to explore the particular processes by which globalized and localized environmentalisms mutually feed into each other. Rather than necessarily silencing alternative knowledge, attempts to reify science as a dominant framework may have the opposite effect. They may promote, as is the case here, responsive reactions from groups of people who would otherwise not voice as strongly, or at all, their own views of the world.

The main invited guests at the Biannual were researchers working at the University of the Azores, world-renowned scientists, representatives of environmental associations such as Greenpeace and the World Wildlife Fund, local intellectuals, Azorean businesspeople, whale-watching operators from other places around the globe, and members of the Azorean Government. These guests produced presentations about whales and their behavior in the ocean, the potential impacts of whale-watching upon whales, the legacy of whale hunting, political speeches about the importance of whale-watching, and talks by economic operators. Presentations about whales and whale-related activities were meant to provide background knowledge for debating proposed legislation for regulating whale-watching in the Azores.

Ultimately, the first Biannual for Whales became a discussion about the roles that the legacy of whale hunting and the presence of whale-watching should have in Lajes. As such, it became an official arena for approaching the conflicts about whales that the people of Lajes experienced in their daily lives while the two different whale-watching philosophies clashed. The dissident whale-watching companies contested the dominant views during the Biannual and during the debates that followed during the next few months. They counted on the

support of expert opinions of local and international deep ecologists, as well as of many members of the Lajence population.

In 1995, one of the dissident companies, *Baleias e Golfinhos*, was founded on the island of Faial. This company resulted from a partnership between a foreign couple and a firm that owned a famous pub and souvenir shop in Faial.⁹ The couple identified themselves as deep ecologists, and they were the company's brain, voice and public image. They were the ones who introduced the idea in the Azores that whale-watching practices should above all be attuned to the behavior and ecology of local cetacea. To these ends, one of the first things they did was to conduct extensive interviewing with former whale hunters in Faial and Pico to begin to understand behavior patterns of local whales and dolphins (e.g., when and where they could be found, and how they responded to the presence of boats). Since neither had first hand knowledge of cetaceans, they established contacts with some of the best known marine biologists who, in their mind, followed deep ecology¹⁰ views in relation to whale-watching. Through these contacts, they began to learn how whale-watching affected cetaceans in other areas of the globe and which practices seemed to respect their well-being. In turn, they also acquired a special prototype boat that used water jets to reduce the amount of underwater noise cetaceans would be exposed to during a whale-watching encounter.

Finally, the couple began to apply all of this knowledge to their interactions with cetaceans, paying close attention to how these animals responded to human presence. They were particularly committed to allowing the cetaceans to determine the terms of this interaction. This meant that, informed by marine biology, they would look out for signs of stress amongst cetaceans (erratic/speeded breathing pace or evasive swimming, for example) and they would keep their distance until the whales or dolphins showed signs of being comfortable with the boat (by swimming to the boat for example and calmly showing curiosity). In reaction to the presence of the leading whale-watching companies, especially *Delphus*, the couple soon became activists who fought to have the other companies accepted and implement their

philosophy and have their practices of whale-watching adopted. It was at this point in time that they began to collaborate with Poseidom.

Poseidom, as already explained, was the first Lajence whale-watching firm. It employed mostly former whale hunters and relied on their knowledge as the reference for practicing whale-watching. The owners of Baleias e Golfinhos immediately recognized that this meant that Poseidom's whale-watching philosophy paralleled their own. First, Poseidom favored the adoption of local ecological knowledge about whales as their frame of reference. Secondly, Poseidom preferred to use in-board engine boats, thus showing concern for reducing the levels of underwater noise pollution that whale-watching creates. The two soon started to collaborate in promoting a whale-watching philosophy that stood as an alternative to that of the leading whale-watching firms. Even though this process brought the two companies together under the same goal, it was not void of friction.

It is true that Poseidom and Baleias e Golfinhos agreed that human-cetacean interactions should be based on the specificities of local cetaceans and their ecosystem, and on adjusting skipper practices to the behavioral feedback of the animals. However, the skippers of each company understood and practiced this principle differently. When they discussed these issues, there was more at stake than the mere flow of semiotic meaning from one system of knowing to the other. In effect, both groups learned from one another.

When the owners of Baleias e Golfinhos talked of being committed to allowing the cetaceans to determine the terms of this interaction, they looked for signs of stress amongst cetaceans and kept their distance until the whales or dolphins showed signs of wanting to engage with the boats. The same affirmations from the former whalers who worked for Poseidom translated into sneaking up on cetaceans or approaching them as un-noticed as possible preferably from behind, which is the whale's blind spot. The whalers did so as gently as possible, as they tried to communicate with the whales by mimicking their pace, for example. These had been the strategies they used very successfully to hunt whales in the past. The former whalers also had little problems in approaching

whales that were logging (i.e., sleeping) or nursing their off-spring. They were actually very proud of being able to get that close to the whales since it proved how skilled they were.

In contrast to this, and informed by the work of marine biologists, the owners of Baleias e Golfinhos argued that this type of action frightens whales and is a serious stressor. While the whalers claimed that no one loved a whale as much as a former whale hunter (Neves-Graça 2004, 2005a, 2005b), they differed from the owners of Baleias e Golfinhos on how to show this love.

Hence, even though Poseidom and Baleias e Golfinhos tried to collaborate on the defense and promotion of shared principles, these shared ideals translated into distinct practices. This difference was a source of friction as the owners of Baleias e Golfinhos felt frustrated that their deep ecology principles were not being learned, and the skippers and owners of Poseidom felt that they and their historically developed knowledge were under attack. However, the two companies eventually created a common context that allowed them to productively communicate across difference. This was a long and difficult process between 1995 and 2000. It entailed members from both companies talking to one another and comparing each other's principles and practices. This allowed them to identify resemblances and differences in thinking and acting, such that they could mutually understand the context from which each of them were approaching the issues, as well as identify the points where they met.

This was very important for the emergence of a wider context that both groups came to share: the former whale hunters came to understand that their practices and knowledge of whales were similar to that of the owners of Baleias e Golfinhos, while retaining sight of their own cultural uniqueness. In time, I observed that these former whalers avoided approaching whales from behind, though they some times lapsed into their old practices. By recognizing parallels between these two ways of knowing and acting, the former whalers began to see a pattern that connected their respect for cetaceans with that of world-renown ecologists. This left the whalers more willing to consider the insights that the latter had to offer.

In turn, the owners of Baleias e Golfinhos and their associates learned to recognize that, even if they did not always agree with the whale-watching practices of former whalers, their ideas of epistemology, or how people know, and their belief in the agency of cetacea allowed for a shared context of whale-watching philosophies and practices. As a result, former whalers, deep ecologists, and dissident company owners engaged one another supportively across difference.

At the level of daily experiences, former whalers who worked for whale-watching companies continued to rely on their practical knowledge of whales as the point of reference for the new activity of observing whales. But to some extent they also reconciled their aesthetic appreciation of whales to the teachings as marine biologists/deep ecologists. Together, these became the central elements in their engagement with the activities of observing whales. While whalers had hunted whales for about a century, they were most genuinely committed to educating whale-watching clients about whales in their environment.

This process was the basis for an alliance between whalers and dissident whale-watching companies at the Biannual¹¹. During the Biannual conference, the dissident whale-watching companies and the former whale hunters manifested their alternative ideas in reaction to the dominant understandings of whale-watching promoted at this event. However, as the process of creating legislation for whale-watching unfolded in the months that followed, the voice of the alliance of dissident companies and former whalers became more audible and the two began to engage in much more publicly visible forms of articulation (e.g., through the mass media).

The dissident views resulted in alterations to the proposed whale-watching law (Neves-Graça 2002, 2004). In order to negotiate the terms of the law, groups who disagreed with one another had to discuss the nature of these disagreements. While each group referred to their main knowledge framework, it became obvious that they actually shared many parallels. For example, globalized scientific knowledge described the behavioral responses of whales in rather abstract terms, as being affected by high pitch engines and responding to them by breathing fast and moving away from the boats. Those who followed local-centered knowledge of sperm whales basically made very similar comments although they

described specific instances, weather conditions, boat type, navigation techniques and so on instead of generalizing. It became evident that there were many parallels across these differences.

The scholarly literature on co-management of ecological resources has accounted for relations between environmental knowledge engendered through practice and other forms of environmental knowledge that are less related to the contexts of specific ecosystems (as for example, the knowledge of dominant forms of western science which, in turn, are intrinsic to most governmental-bureaucratic structures for environmental management). This literature shows, however, that the two types of knowledge complement one another (Bunce et al. 2000; Pomeroy and Berkes 1997; Virdin 2000). Traditional ecological knowledge may be incomplete, and at times flawed, when localism prevents the understanding of macro-ecological processes both from a spatial and from a temporal perspective. Still, its practitioners have adopted some specific practices that permit environmental feedback, whether intentionally or not. In turn, scientists and middle-to-upper level government agents tend to be aware of and responsive to ecological and economic cross-scale interactions that may go unnoticed at the local level (e.g. Berkes 2002; Paulson and Gezon 2005). The literature on co-management shows quite clearly that productive collaboration between the two requires a common commitment to the system's ecological resiliency and willingness to engage in communication reflexively.

The fact that the whalers of Lajes were quite familiar with well-known marine biologists—who relied on Lajence whale hunting to collect data for their Oxford and Cambridge dissertations—facilitated these processes of comparing whaler knowledge to that of mainstream science and incorporating some insight from it (i.e., the process that Bateson called abduction). Indeed, the whale hunters had been exposed to internationally circulating knowledge through the presence in Lajes of international scientists. One collected data in Lajes during the 1970s and later founded a International Fund for Animal Welfare project: “Song of the Whale.” Basically, this project entails the identification and tagging of individual sperm whales (each whale's fluke has unique characteristics, somewhat like human finger-prints)

so that they can be studied through time. I often times heard Lajence whale hunters refer to the scholarly articles of now world famous scientists in order to talk about the biology of sperm whales. They also told me that such scientists owed much of their knowledge to whalers and the whaling industry.

Concluding Remarks

The data I obtained and analyzed in the Azores on the transition from whale hunting to whale-watching led me to rethink the relationship between indigenous and scientific knowledge. While these two sets of knowledge displayed many similarities, alternatively, they could not be completely merged.

At the historical juncture of the transition from whale hunting to whale-watching in Lajes do Pico, one of the major lines of conflict that emerged was whether to have abstract orthodox science as the main point of reference for knowing whales, or to allow for whaler knowledge of these mammals to inform this new business about proper ecological practices. In this context, former whale hunters established alliances with international ecologists and activists, through which they fought for the implementation of practices which took into account the specificities of the oceanic environment of Lajes do Pico, as well as the local legacy of whale hunting.

Thus the final legislative document that regulates whale-watching in the Azores is a woven tapestry that includes views from abstract science from the whalers' traditional knowledge, local economic interests, the demands of the contemporary international market for eco-tourism and, to some extent, considerations about the legacy of whale hunting in the Azores. Although individuals with dissident views were in a less influential position to have their understandings of whale-watching implemented into law, the legislation connects several knowledges that co-existed in the Azores at the time. It does so by means of a series of processes of inter-group comparison that took place through collaborative friction.

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Acknowledgements

Funding for this project was generously provided by the Portuguese Board of Scientific Research (Junta Nacional de Investigacao Cientifica) program *Praxis XXI*.

Notes

- ¹This is done mostly in reference to former whale hunters' since for logistic limitations I could not pursue the same procedure with the many scientists that the whalers had met.
- ²The Whalers' Museum of Lajes do Pico was at the time one of the two most visited museums in the Azores. The Museum has two main collection rooms pertaining to whale hunting, a conference room, a library with books related to marine biology, Portuguese literature, and some literature on international whaling, and a small section reserved for the display of rural-ethnographic artifacts. The three whale hunting rooms are as follows: one large room that displayed Azorean whale hunting tools, including a real hunting canoe and pictures of whale hunting scenes; one room with mostly locally produced scrimshaw; and a conference room where small documentaries on whale hunting in the Azores are projected.
- ³The names of the whale-watching companies used in this paper are pseudonyms.
- ⁴Azorean but from the island of Terceira, which means that she too was initially seen as an outsider.
- ⁵Azoreans often use the term 'estrangeiro,' meaning foreigner, when referring to people who come from places other than Portugal or people who are not descendants of Portuguese immigrants living abroad. The connotation is that not only do foreigners not speak Portuguese fluently, they also are not fully integrated into the local culture.
- ⁶Whales rely on echo-location for feeding themselves and their off-spring and to communicate with one another. When there is too much under-water noise, this process can be seriously disrupted. Also, sperm whales normally sleep (logging) for two to three hours at around human lunch time and zodiac boats tend to awaken them, which affects their resting patterns.
- ⁷*Ciencia abstracta* was the Portuguese expression the people of Lajes used in order to stress the point that most scientists were not knowledgeable of the specificities of the Azorean marine ecosystem.
- ⁸*Vigias* are small single room buildings situated up-hill. They are the posts from which former whalers spotted whales with binoculars.

⁹ Major disagreements on how to conduct whale-watching and a court case between the couple and the firm lead to the dissolution of this whale-watching company in 2001. The couple's argument for whale-watching practices based on deep ecology principles clashed with the monetary goals of their Azorean partner.

¹⁰ Deep ecology here means that they followed a precautionary approach to whale-watching where the

prime goal was to avoid disturbing cetaceans and to allow the animals to decide whether they wanted to approach the boats or not. Deep ecology is based on the notion that it is a privilege for humans to interact with nature (in this case cetaceans), not a right.

¹¹ There was another Biannual in 2002 as a follow up which I did not attend. I did find out however, that the second one was far less contentious.

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