

# *Revisiting the Tragedy of the Commons: Ecological Dilemmas of Whale Watching in the Azores*

Katja Neves-Graça

This paper explores a possible theoretical framework for studying issues in common-pool resource that emerge from tensions between place-specific notions of common rights and state regulation of access to commons. While the former is historically informed by “traditional ecological knowledge,” the latter is based on abstract international environmental law and on capitalist-oriented development goals. This paper analyzes the regulation of whale watching in the archipelago of the Azores, Portugal, to show how variously situated social actors conceptualized the rights of access to marine commons. It also reveals how these distinct views came into conflict, not only in the context of finding ways to regulate whale watching but also through actual practices of this commercial activity. The Azorean example suggests that a successful process of communication among these different views can lead to ecological learning and improved ecological wisdom of those involved, and, thus, a more sustainable use of marine commons.

**Key words:** common-resource access, ecotourism, globalization, whale watching, Azores

## **Ecological Dilemmas of Watching Whales as a Common-Access Resource in the Azores**

*The essence of dramatic tragedy is not unhappiness. It resides in the solemnity of the remorseless working of things.... This inevitableness of destiny can only be illustrated in terms of human life by incidents which in fact involve unhappiness. For it is only by them that the futility of escape can be made evident in the drama.*

Garrett Hardin quoting Alfred N. Whitehead  
(1968:1244)

And so, adding that “the tragedy of the commons develops this way,” Hardin (1968) initiated an academic debate that has encompassed a wide range of disciplines over the past three decades. Hardin contended that—because in the absence of restrictions people acting on the basis of self-interest tend to extract as much as possible from resources—the tragedy of the commons resides

in the inevitableness of their destruction under conditions of populational pressure. Contributors from various social sciences have critiqued Hardin’s argument for being excessively simplistic as well as for being deterministic. Anthropologists, for example, have demonstrated that in most places of the world there are social and cultural factors that preclude the onset of the tragedy of the commons and that, therefore, any discussion of common-pool resources must begin by clarifying how access is conceptualized, ruled, and practiced.

Oceanic resources are one context where Hardin’s hypothesis has seemingly come to fruition, but where one can also observe that human-environmental relations do not necessarily lead to the depletion of ecosystems. The history of human uses of whales for economic purposes is a case in point. While most species of whales have been hunted to the brink of extinction, coming to symbolize for environmental activists the effective occurrence of Hardin’s pessimistic predictions, whale watching has become an allegory for conceptualizing a truly ecologic commercial practice. As with most human-environmental phenomena, reality is far more complex.

Many whale-hunting communities faced constraints that limited the number of whales they killed. These ranged from technological limitations to sociocultural restrictions to ecological and demographic factors. For instance, even though access to sperm whales was mostly open during the 100 years that men hunted whales in Lajes do Pico (Azores, Portugal), the number of whales killed in Lajes was never large enough to threaten the sustainability of these cetaceans in the Azorean archipelago. This common-pool resource was not overexploited

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*Katja Neves-Graça is assistant professor, Department of Sociology and Anthropology, Concordia University, Montreal, Canada. I am grateful to the Portuguese research board Junta Nacional de Investigação Científica e Tecnológica (JNICT) for financing my field research in the Azores under program PRAXIS XXI. I would also like to express my gratitude to Tracey Heatherington for her support during the earlier stages of preparing this article for submission.*

due to a sociocultural preference for artisan methods of hunting whales as well as a finite capacity to process and export whale-derived products. There was a time, however, between World War I and the Korean War, when the ratio of whaling canoes or boats to whales increased, and whale hunters began to compete for this resource. Interestingly enough, this did not lead to a significant expansion of whaling companies because, among other factors, the whale hunters knew this would actually result in declining yields. As former whalers told me on many occasions, when attacked by humans, whales seemed to alert each other within a certain distance and thus disappear into the depths of the ocean. They knew that once the whales were spooked during a hunting trip, other companies were at a disadvantage and were less likely to capture and kill a whale within the same area. Thus, in the Azores, competition for whales translated into a form of rivalry between whalers, forged through speed and skill rather than resulting in a further increase in the number of whale hunting enterprises.

Taking for granted that the use of whales as a resource for ecotourism does not pose any ecological dilemmas is an equally problematic assumption. Often whale-watching boats produce too much underwater disturbance (noise), leaving whales disoriented and frightened. This can potentially affect their social lives, their capability to feed themselves, or their ability to nurture their offspring. Some argue that such stresses can actually compromise the ecological resilience of whales and that, as such, whale watching might have serious negative impacts on the long-term welfare of the species (Monteiro 1998). In fact, this very issue became a point of contention in Lajes do Pico when whale watching was introduced in this village in the late 1980s. While many embraced this new activity as the conversion of an exploitative relation with whales into a ecologically sustainable practice, some people in Lajes, including some former whale hunters who relied on "local traditional knowledge," became worried that unless this activity were regulated, the well-being of Lajence whales might be seriously compromised.

This ecological dilemma unfolded into the political effort to regulate access to the ecosystem of Azorean whales that is analyzed in this paper. In regulating whale-watching practices within the oceanic commons of the Azores, people referred simultaneously to local social mechanisms of common-pool tenure informed by "local ecological knowledge" and to the more abstract rules of nation-state law or international treaties that are administered through governmental bureaucracies. These can be seen as contradictory, and indeed conflict emerged as different groups of people referred to either one or the other. Most ecosystems encompass areas that do not correspond neatly to human categorizations of "local, national, and international"; rather, ecosystems are multispatial, multileveled, and temporally complex, which can create serious environmental problems.

Using ethnographic materials from the Azores, I investigate a possible theoretical framework for exploring these conundrums. I propose an approach to the commons that takes into account the following elements. First, echoing Polanyi

(1957) and the substantive anthropologists who followed his work, I discuss the limitations of Hardin's formalistic approach by pointing out that economic systems are always embedded in sociocultural institutions. Relying on ethnographic material from the Pacific, I contend that any account of common-resource access should try to understand the dynamics of interrelated factors (capital, ecosystems, sociocultural factors, regional and international economic markets) at particular historical junctures, which may or may not lead people to engage in activities that promote "tragic" outcomes for common-pool resources. This approach is subsequently applied to the Azorean ethnographic material.

Second, I suggest that to understand issues pertaining to the commons, one must also examine the politics of ecological knowledge that are part and parcel of processes of negotiating, legislating, and implementing access to common-pool resources. Distinct knowledges, providing different information about the potential ecological risks and benefits created by commercial uses of resources, are a core aspect in people's appraisal of what constitutes socially, economically, and environmentally sustainable activities. Expanding on Ostrom's (1990; Ostrom et al. 2002) work on common-pool resources, I argue that this entails scrutinizing various levels of governance and bureaucracy that provide expert scientific knowledge and that have the legitimacy to make decisions on behalf of the people they represent, as well as the many groups of social agents who might be informed by context-specific ecological knowledge. It is equally crucial to consider the communicative feedback that takes place between these two settings. Under certain conditions, even conflictive communication about distinct understandings of what constitute ecological sound uses of common-pool resources can lead to increased levels of ecological literacy.

This paper will demonstrate that while some anthropological literature on the commons tends to glorify ecotourism as being in harmony with nature—thus being able to dodge the tragedy of the commons—some of these enterprises either do not have sustainable relations with their environments at all, or, when they do, sustainability is often merely the byproduct of profit-seeking behavior. In reporting that even in situations of increased populational density open access to commons does not necessarily lead to ecological disaster, I follow anthropologists who have overthrown Hardin's assumption that it is the system of resource tenure that determines the occurrence of the tragedy of the commons. Instead, I demonstrate that socioculturally conceived ethics of resource use and economic conduct, in conjunction with perceived environmental potentials and limits, can be far more relevant factors.

### **Rephrasing Questions about the Commons in the Aftermath of the Formalism-Substantivism Debate**

Hardin argued that to maximize personal (economic) gain, people compete to extract as much as possible from open-access

resources, even at the expense of depleting them. In view of this, and in accordance with Malthusian assumptions concerning exponential populational growth versus limited renewal of natural resources, Hardin proposed that unregulated access to the common leads to overexploitation, deterioration, and, after a certain threshold, irreversible and inescapable destruction.<sup>1</sup> As a solution Hardin proposed that the commons be privatized. He was convinced that owners of private properties are more motivated to secure the sustainability of their resources for themselves as well as for their descendants.

To ask whether the private ownership of resources can in and of itself secure the sustainable management of resources, while assuming the universality of self-interest in economic behavior, is to reproduce Hardin's fallacy of misplaced concreteness. Insofar as Hardin addresses the tragedy of the commons in terms of assumed universal laws about human nature (through the writings of Malthus and Darwin, or even through a critique of Adam Smith), he fails to consider a contextualized understanding of human motivations and behaviors—a point anthropologists made evident through their critique of classic formal economics, and one well worth recapitulating.

Formal approaches to economics rely on mathematical models and abstract premises about human nature to explain economic phenomena and behavior. These models are derived from a set of axioms that leave little or no space for sociocultural variability or even human reflexivity. Within this framework, the agent of economic behavior is usually portrayed as an "ahistorically rational" individual who considers "purely" economic factors in the process of decision making (Schneider 1974). Because formal economics emerged within the logic of liberal-capitalist cultural forms, rational economic behavior came to mean the maximization of capital accumulation or gain. Decisions pertaining to production, consumption, and distribution are supposed to be based strictly upon considering monetary costs versus monetary profits. It is assumed that the totality of the economic agent's behavior can be explained as an effort to maximize the satisfaction of material needs (and profit) and that this is achieved through careful calculations of the situation of the capitalist market (Ortiz 1983).

In reaction to the limitations of formalism, Polanyi (1954) introduced a substantive approach to economics by suggesting that for economic decisions to make sense they must necessarily be situated within their sociocultural and political contexts. More specifically, he argued that decision making cannot be understood in the abstract terms of philosophical postulates about human nature because sociocultural factors such as worldview, gender, class, age, and cultural understandings of ecological limitations are integral elements of decisions on how to use resources. As Polanyi points out, the "great transformation" introduced by the industrial revolution was that while previously economic decisions were mainly embedded in face-to-face social relations, with capitalism and the modern state these decisions have been disembedded from their traditional sociocultural contexts and re-embedded

within the liberal-capitalist market. The capitalist market may be the explanatory context for decision making in industrial and postindustrial societies but not necessarily for other economic systems (see also Halperin 1994).

Notwithstanding the importance of the contribution made by early substantive anthropology toward a better understanding of how people make decisions about common resource management (e.g., Barlett 1982; Burling 1962; Cohen 1967; Godelier 1972a; Ortiz 1983; Worlf 1966), this area of inquiry had a few serious limitations. Substantive anthropologists left little space for human agency. Their accounts suffered from sociocultural determinism (e.g., Halperin 1994). These approaches also left little room for historical understandings of economic systems (e.g., Godelier 1972b), and because people were portrayed as passive carriers of culture, conforming to culturally established forms of conduct, these works tended to ignore the role of power relations and individual strategizing as explanatory factors of economic behavior (Jennings 1993). Finally, they failed to explore how these groups were simultaneously locally spatialized and globally connected (Aswani 1999; Geertz 1972).

Ruttan (1998) has further debunked assumptions about the universality of a causal relationship between self-interested economic behavior and the degradation of the commons. She achieved this through a discussion of ethnographic material from the Kei Islands in eastern Indonesia by scrutinizing four mechanisms that work to prevent the type of free-riding that leads to "the tragedy of the commons." These are: *reciprocal altruism*, including "moralistic" and "redistributive" strategies, as well as the punishment of those who cheat; *asymmetrical altruism*, where a group of people take upon itself the task of policing and enforcing rules of access in exchange for a bigger share of resources; *kin selection*, which assumes less possibilities for misbehavior among family members; and *ideological and social norms* as a way to maintain cooperation.

Nonetheless, Ruttan (1998:48) does add that "while a 'conservation ethic' may be an important feature of a sustainable system, it is insufficient in itself." Her main contention is that conservation often actually occurs as an "incidental effect" (ibid.:50), and that even when groups of people try to refrain from free-riding a given "common" they do not necessarily achieve a sustainable relationship with their common-pool resource. In part this is, of course, related to the difficulties in assessing the effect of human actions upon ecosystems, especially when the temporal and spatial scopes of ecosystems are misrecognized by humans. This is a particularly important point in the context of any attempt to provide a useful theoretical approach to the commons. As Ruttan (1998:62) puts it, this confronts us with the task of characterizing "which specific ecological or economic conditions permit the evolution and continuation of successful management regimes." Ruttan calls for a historically informed inquiry—one that pays close attention to the unfolding of human-environmental relations which can secure the resilience of ecosystems (Gunderson and Holling 2002).

Aswani (1999) picked up on the call for a more historically informed understanding of marine tenure regimes in an article that scrutinizes common-resource management in the Lagoons of Roviana and Vonavona, New Georgia, and Solomon Islands (Aswani 1999). Considering the interaction of various levels of governance, Aswani argues that, even though the literature on sea tenure in the Pacific acknowledges highly dynamic regimes of tenure, historical analysis of common-resource management in this area has tended to present local changes as the result of external factors and agency. Alternatively, Aswani uses ethnographic data to show how transformations in Roviana and Vonavona result from a complex interaction between autochthonous processes and exogenous agency such as colonialism, neocolonialism, and various aspects of globalization. In so doing, Aswani also shows that contrary to what is often assumed, this interaction does not result in the degradation of common resources. In effect, he rejects the assumption that the free-riding of "open access commons is the result of either institutional breakdown caused by market economy or imposition of an open access regime by national or colonial authorities" (ibid.:420). Aswani's work clearly indicates the need for a better understanding of relationships between global economic processes and local regulation of common resources.

In an overview of an international workshop on Traditional Marine Tenure and Sustainable Management of Marine Resources in Asia and the Pacific, Crocombe (1994) makes some interesting observations concerning tensions between continuity and change as they emerge from the interaction between customary and state regulation of access to common resources. Crocombe says one of the main results of these meetings was to show that even when customary rules are allowed to persist within centralized governments, the *operation* of these rules changes radically. This is because with institutionalization of centralized governance, the interpretation, administration, and implementation of customary rules is removed from the sociocultural context where they originated. The consequence "is that a new mixed system emerges, incorporating features from the past, introduced features, and unique adaptations derived in each particular context. That is the current practice (or 'custom' for those who prefer that term)" (Crocombe 1994:292). In the final instance, the result is the blurring of previously taken-for-granted distinctions between law and custom. The challenge that is implicit in this context is to develop adequate tools for exploring how people conceptualize rights of access to the commons by considering, at a single point of time, habitual practices and understandings as well as the more abstract definition of rules of access by the state and state bureaucracy.

These selected examples from the Pacific indicate that anthropologists are exploring venues for providing historically grounded accounts of the complex relationships among traditional ecological knowledge, abstract international environmental law and science, the mediating role of bureaucracies, and the use of common resources. In this context, one must also explain how it is that "traditional" arrangements coexist

with the more impersonal framework of globalizing capitalist markets and centralized states. In what follows I suggest that, grounded on the discussion by Ostrom, Gardner, and Walker (1994) of "rules, games, and common-pool resources," a possible theoretical approach to these issues can be developed by conjoining existing theoretical contributions by Berkes (1999), Beck (1992, 1995), and Giddens (1990, 1994). The usefulness of this approach will be demonstrated later in this paper through an analysis of Azorean ethnographic data.

### **Politics of Knowledge, Scopes of Governance, and Ecological Learning**

The calculation of anticipated socioeconomic benefits or gains vis-à-vis the potentially negative impacts of a given economic activity is an important variable in how people make decisions about rules of access to common-pool resources. This often translates into calculations of how much "subtractability" a particular ecosystem can withstand, while still remaining ecologically viable. Adding to this argument, I suggest that insofar as decisions on how to govern the commons aim to manage expected benefits against potential damages, they are calculations of risk as defined by Ulrich Beck (1992): they are meant to deal with the real fear that the overuse of resources may cause their depletion and, therefore, threaten the stability of related economic activities.<sup>2</sup> Beck's thesis is that to avoid the tragedy of the commons,<sup>3</sup> and thus also economic unrest, one of the main sociopolitical issues people are confronted with is the management of the potential negative consequences of the excesses of industrial society—as he puts it, the distribution of risk.

The problem is that the information possessed by individuals as a basis for making these decisions is rarely complete, especially in view of the uncertainties and complexities of ecosystems and of economic phenomena. According to Ostrom, Gardner, and Walker (1994:34), for people to develop rules for common-pool resources based on complete information they would have to know:

1. the actions that each participant can take at every stage of a decision process and those acts that are governed by a random operator;
2. the intermediate or final outcomes that can be reached as a result of the moves of various participants combined with chance moves where relevant; and
3. the preference ranking placed by each participant on all outcomes.

Without doubt, the most normal state of affairs is for people to make decisions based on information which is larger and more complex than they can amass or understand. Contrary to assumptions of formal economists, people's decisions often reflect "bounded rationality" whereby individuals "may not utilize all the information available to them, and they make errors in processing the information they use" (Ostrom, Gardner, and Walker 1994:34). To understand people's

behavior in particular situations “one must make assumptions about the preferences, information-processing, skills, selection criteria, and resources of the actors who are participants [within an given action arena]” (ibid.:35, 47-50).

Because ecosystems as well as economic systems are multispatial, multileveled, and temporally complex, processes leading to decisions on how to regulate access to the commons also tend to encompass various scopes of governance (local and supralocal) wherein rules of access are developed and enacted. For this reason, people often delegate decisions to bureaucratic governmental institutions that can manage a much wider range of information. The goal here is to analyze these various levels without letting any of them obscure the understanding of the others, especially when there are disagreements between the views put forth by distinct levels. In this context, the notion of action arena is useful, in particular if one considers, as Ostrom, Gardner, and Walker (1994:28) propose, the possibility of establishing analytical links between several levels of action arenas.

Action arenas include an *action situation* component and an *actor* component. Action situations refer to the social space where individuals interact, exchange goods and services, engage in appropriation and provision activities, solve problems, or fight (among the many things that individuals can do in action situations).

As they put it, this allows us to explain how “rules are nested in another set of rules that, if enforced, defines how the first set of rules can be changed” (ibid.:46).

Following the above line of reasoning, Ulrich Beck (1992, 1995) has suggested that in industrial and postindustrial societies, many agents do not always make decisions based directly on the workings of capitalist markets, but also through institutions such as state bureaucracies that manage threats to the stability of these markets. Hence, bureaucratic administrators and experts have come to occupy leading positions both in the production or management of knowledge on risk and in prescribing practices intended to control and reduce risk. Decisions tend to be disembedded from their local specific contexts and reembedded in bureaucratic settings that follow the logic of abstract rules. This explains how government officials and bureaucrats were assigned to gather and manage scientific information about the potential environmental risks created by commercial observations of whales, as well as to frame ecologically sound rules of access to the Lajence oceanic commons.

The acceptance of technoscientific knowledge, which grants such a high degree of legitimacy to bureaucratic policies and regulations, is a sociocultural and political phenomena which is often questioned by people who are informed by alternative forms of knowledge, as indeed happened in the Azores. For example, Berkes (1999:8) uses the notion of traditional ecological knowledge to refer to the knowledge that groups of people living in specific environments develop cumulatively across generations through practical engagement with each other and their surroundings. In this sense,

traditional ecological knowledge is that which emerges from human-environmental coevolution. Relying on ethnographic data from various places in the world, Berkes (1999) clearly demonstrates that traditional ecological knowledge is absolutely key to the conceptualization of rules of access to commonly held resources as well as to related practices. In relying on such knowledge, people often challenge governmental rules that legislate access to common-pool resources. After all, one must also keep in mind that:

The prescription that external authorities must impose change leads to attempts to impose uniform national or regional laws. In any country where the attributes of the physical world vary substantially across locations, the same set of rules that engender positive outcomes in one physical location can engender negative outcomes in other locations. The imposition of uniform rules can lead to dramatic differences in outcomes or to extreme discretion on the part of officials who adjust the uniform rules to fit local circumstances (Ostrom, Gardner, and Walker 1994:326).

How decisions are made thus depends on the context (or action arena) in which they take place, as well as on the sources of knowledge which inform them. In the Azores, decisions on how to govern the Lajence oceanic commons entailed two main levels: bureaucratic settings, informed by abstract science and international law, and the local level, informed by years of practical engagement with whales. In effect, while prior existing social relations were partly disembedded from their traditional forms—and then reembedded into the scheme of industrial society and into the institutions of the nation state—traditional social relations were not completely replaced by the forces of the market and of the state (Giddens 1990, 1994). Rather, the two coexisted in time and in space, and people made decisions by reflexively considering both (ibid.).

The relationship between these two action arenas is neither deterministic nor linear. Consequently, one should consider the politics of knowledge that informs the processes of regulating access to common-pool resources. This means scrutinizing local, historically developed forms of ecological knowledge as well as the specific interactions that occur among people in the context of attempts to define and implement rules of common-pool resource access. In addition, although the rules that are created and defined at the level of governmental action arenas are relatively fixed constitutional norms, they are subject to contextual interpretations and implementations (collective-choice rules) whereby abstract rules may effectively change when they become operational (Ostrom, Gardner, and Walker 1994:46).

Once combined, these theories provide a useful framework for exploring serious dilemmas in common-resource tenure, especially for anthropologists who are confronted with ethnographic situations where people’s decision making is embedded simultaneously in traditional ecological knowledge and social relations, abstract international environmental law and science, global capitalist markets, and the workings of

bureaucratic institutions. I rely on this framework for studying these issues in the context of whale watching in the Azores. For various reasons, whale watching opportunities were a limited resource over which there was a distributional fight concerning who gets access and how limited this access should be. In accordance to the framework I have just presented, I will discuss how various groups of people conceptualized rules of access to this resource by referring to either governmental-action arenas informed by international law and context-removed science, to local traditional ecological knowledge, or to both simultaneously.

## The Azorean Case

### Humans and Whales in Lajes do Pico

Lajes do Pico, also known as the Whaling Village (A Vila Baleeira), is situated on the southern shore of the mountain-island of Pico in the mid-Atlantic archipelago of the Azores. First populated by the Portuguese during the second half of the 15th century, the inhabitants of Lajes depended on an extremely precarious subsistence economy. For most of the 500 years of Azorean history, the people of Lajes ignored the local whales and other cetaceans. In the middle of the 18th century, the first American whale ships began to call at Horta, on the neighboring island of Faial (about 4.5 nautical miles from Pico), to stock up on food and water and to make small repairs. By 1768, over 200 ships from what is now the United States and from Great Britain had called at Horta (Chaves 1924; Lima 1940:391; Starbuck 1878). By the end of the 19th century, the presence of American whaling boats in the Azores began to decline due to the destruction of whaling vessels during the American Civil War and the discovery of petroleum in the United States. By 1921, American whaling ships no longer called at Horta (Barndt 1940; Clarke 1954; Harmer 1929).

Still, whale-related products remained in high demand, especially the fine oil derived from spermaceti (the oil extracted from the head of sperm whales). This demand, initially derived from the need to lubricate the machinery of the industrial revolution, was later substituted by the similar demands of war-related technology of the First and Second World Wars. In awareness of the need for whale-derived products (Avila 1992), the first successful Azorean whale hunting company was founded in 1876. Just 10 years later, the village of Lajes, then populated by about 1,500 people, had 16 whaling canoes registered under 13 companies.

Azoreans whaled with a type of canoe they adapted from the American whaling canoes (a bit longer, with a crew of seven men instead of six) and processed whales on shore stations. The whalers of Lajes had to rely on sailing to navigate their canoes toward the area where whales could be found. When close to the whales, the sail was lowered and the crew rowed in their final approach to harpoon these mammals. Later, in the 1930s, engine launches were introduced, but only to tow the canoes closer to the whales. The actual hunting procedure remained the same.

In the years between the beginning of World War I and the Korean War, this industry was the most important source of cash income in the village. For many families it was the only source of cash for basic goods such as sugar and shoes. During this period, Lajes was also an important center for the scientific studies of whales, mainly through the dissection of dead animals (Avila 1991; Clarke 1954; Gordon 1979).

Whaling was an extremely competitive activity in Lajes do Pico, and men fought to secure the economic welfare of their families. Success at this competition meant having the best eyes for spotting the mist produced by whales, being the most organized in alerting the crews, and being the best in rowing. But most of all, it required the most accurate knowledge of whales and of their ecosystem. Whales do not stay at the surface the entire time, and they often dive for periods of up to one hour to search for food. Thus, it is crucial to be able to anticipate where and when the whales will surface to breathe. Anticipating when this will occur means being able to adequately correlate information about the size of the whale (bigger whales stay under the water longer), the sex of the whale, the direction it took upon submerging, the angle of submersion, and the conditions of the ocean. As whalers often say, it means feeling and thinking like a whale. The accumulation of this type of knowledge through several generations of whalers in Lajes fits Berke's notion of traditional ecological knowledge. Its interaction with abstract scientific knowledge put forth in bureaucratic contexts raises interesting questions about the politics of ecological knowledge.

In 1989, six years after the last whale was officially killed in Lajes do Pico, the Whalers' Museum (*Museu dos Baleeiros*) was established and the first Azorean whale watching company, Neptuno,<sup>4</sup> was created. Both were situated by the village's port, where the activities related to whale hunting had been pursued for almost a century. The whaling legacy was once more a core aspect of the village's economy and a main source for the construction of identity by various groups in Lajes.

This article is based on dissertation fieldwork conducted from the summer of 1998 to the fall of 1999, as well as a second trip in the summer of 2000. Most data were obtained through participant observation, combined with archival research, directed in-depth interviews, and still and video photography. I lived in the center of Lajes for about a year and a half and participated in as many activities as possible, including going out on whale-watching trips for most of the summer, during which I could observe former whale hunters in their new activities as skippers of these boats. On these trips I observed the skippers' behavior toward whales and dolphins and their relations with tourists, personnel from different whale-watching companies, and among themselves. I participated in the trips as a crew member and, as such, I took part in many activities and conversations with former whale hunters. I also had the opportunity to closely observe and interact with the tourists who take these trips. On many other occasions, I took trips with whale-watching firms who did not rely as directly on former whalers as members of their team.

On shore, I interacted with the several groups of people who were related (even if remotely) to whaling, which provided me with a setting to discuss the history of whale hunting, to gather life histories of whalers, to hear whaling stories, and to discuss former whalers' views on the new business of whale watching. I conducted directed interviews with intellectuals, politicians, former whale hunters, and museum staff. These interviews collected specific, detailed information about the several issues I was studying, including how legislation meant to regulate whale watching is created. These interviews also gave me detailed information about topics that would otherwise be difficult to access, such as historical events recounted by informants that were not in the written record.

### **The Need to Regulate Access**

When I arrived in Lajes do Pico in August of 1998 to do fieldwork, nine years after the first whale-watching company was founded, the number of commercial whale watching enterprises in the Azores was rising fast. Neptuno had become so successful that it attracted at least as many tourists as the Whalers' Museum (between 4,000 and 6,000 people a year). With the visible success of this firm, other local investors started their own whale-watching businesses. By the end of the summer of 1998, eight whale-watching companies, some of them operating two boats each on a daily basis, were operating in Pico and the neighboring island of Faial. By then it had become quite evident that the number of whale-watching companies, as well as the number of boats operating out of Lajes, could not continue to grow. Tensions, both in the Lajence oceanic-ecosystem and in the socioeconomic setting of Lajes, emerged out of a complex set of relationships among the characteristics of ecotourism in the Azores, the Lajence oceanic ecosystem, practical and technical aspects of access to the ocean from the island of Pico, and the sociocultural legacy of whaling in Lajes.

With the exception of a few cruise ships, people can only access the islands by airplane. The number of rooms available for tourists on each island is equally limited. Consequently, potential growth in the number of ecotourists traveling to the Azores was limited. As an increasing number of whale-watching operators competed for a relatively stable number of tourists, profits began to decline. Several companies responded by seeking to gain advantage through novel offerings. They turned their whale-watching trips into "sea-adventures," promising their clients a closer look at whales and dolphins. The result was that boats began to disturb cetaceans by getting too close, too fast, and too often.

Sperm whales and dolphins normally swim in pods. Thus, even though the oceanic area adjacent to Lajes is quite extensive, on occasions when there were only two or three pods of cetaceans the number of boats per animal was far too excessive. Moreover, most whale-watching businesses in the Azores offered trips that lasted for about three hours. Most companies made their first trip at 8:00 A.M., returned to shore by lunch, and picked up the next group of tourists for

the afternoon. With such a schedule, it was much more convenient for operators to target pods that were closer to shore than to navigate an extra hour or two. Therefore, the same pods were frequently the target of fast approaching zodiacs. These relatively small boats are often used by whale-watching operators in the Azores. They carry between 8 to 20 passengers on average, are usually at least partly inflatable, and are powered by an outboard engine.

Another source of latent tension in relation to free access to the Lajence oceanic commons was related to the legacy of whale hunting in Lajes. Discourses linking the whale-hunting legacy to the cultural identity of the village were a central aspect in people's lives. Some economic operators in Lajes used this to claim that people with "historical roots in Lajes" had higher legitimacy to accessing whales. The basis for this claim was that not only did they understand these mammals better but, as local inhabitants raising their sons and daughters, they had a vested interest in securing the sustainability of this activity for their descendants. As a result, they saw themselves in competition with the people from Neptuno and the neighboring island of Faial. This inhibited the various whale-watching operators from collaborating with one another to define and implement sound ecological legislation and practice.

These factors initially resulted in the steady growth of competitive behavior in Lajes, as each company tried to take out as many clients as possible in as many boats as possible. Arguably, this introduced high levels of stress into the environment of cetaceans, who depend on echo-location to sense their environment and to find food—a capability that is likely to be compromised when overboard engines produce high pitches that interfere with the sound-frequency used in echo-location. The rapid approach of zodiac boats disturbed the whales when they were sleeping or feeding offspring, and they took evasive action.

In time, established whale-watching operators began to realize that unless this economic activity were somehow regulated and controlled, its future would be seriously compromised. First, because the number of potential clients was limited, it was necessary to limit the number of whale-watching operators in the archipelago to avoid future bankruptcy. Second, whale-watching operators understood that they were not only competing among themselves but also with many other whale-watching destinations around the world, many with easier and cheaper access for tourists. They were aware that unless they managed to promote a unified competitive image for Azorean whale watching, the flow of tourists would be diverted to better marketed places.

The majority of Azorean operators believed that one possible solution laid in developing whale watching as an "ecologically sound" business. What an ecologically sound whale-watching business meant, however, was a major source of contention. In October 1998, the First Azorean Biannual Conference for Whales and Dolphins was held in Lajes do Pico. Its goal was to define the future development of whale watching in the Azores, especially how to create and market

a business based on notions of “proper ecological conduct.” Its main mandate was to institute an agreement on who would have access to the Lajes oceanic commons and through which practices.

### **Whale Watching and State Regulation: Defining Access to the Commons through Abstract International Law and Science**

The First Azorean Biannual Conference for Whales and Dolphins took place at a historical juncture that local whale-watching operators, government-administrative authorities, local university scientists, and the socioeconomic elite of Lajes conceived as the “moment of transition” from whale hunting to whale watching. The biannual conference included presentations by government officials and representatives, research staff from the University of the Azores, internationally renowned scientists, members of international environmental organizations (e.g., Green Peace), staff from whale-watching companies, people representing the interests of local tourism and small businesses, and a group of writers interested in the sociocultural history of Azorean whaling, including the director of the Whalers’ Museum. The general population of Lajes, as well as former whale hunters and former owners of whaling companies, were the main audience.

The presentations situated Azorean whale watching in the context of various alternative ways to model this form of ecotourism. Speakers at the biannual conference considered three main models for whale watching:

1. a highly commercial model, with few if any rules of access, where an excessive number of boats compete for the best view of whales, each trying to maximize its company’s monetary profit even at the cost of introducing serious stress in the ecosystem;
2. a “high-end” exclusive model, practiced in oceanic areas where access by whale-watching boats is kept to a minimum (practiced in Hawaii), and normally associated with “nature sanctuaries,” such as nursery areas where whales give birth; and
3. an “ecologically friendly” commercial model, practiced where access is not as carefully limited but where rules are in place to avoid the overexploitation of whales and dolphins.

All conference participants agreed that the highly commercial model should not be adapted in the Azores, since the Azores, given its limited air access, could not offer a wider package to attract mass tourism, and since the Azorean climate is only attractive to mass tourism in the summer season. On the other hand, return on Azorean investment in tourism is low, and long term, which inhibits Azorean operators from investing in more and bigger hotels, and in developing attractions that would entertain tourists in other seasons. Finally, developing whale watching to accommodate the demands of mass tourism could compromise the ecological sustainability of this business in the Azores.

Discussants decided that the “high-end” model of whale watching characteristic of nature sanctuaries was not economically sustainable in Lajes. Because of significant restrictions on the number of people and boats allowed into these areas, profit must be made by raising the price of whale-watching trips. They feared this option would mean losing a good portion of the tourists who visit the Azores for reasons other than whale watching. A small minority of conference participants believed the oceanic area in front of Lajes should be declared a nursery and Azorean whale watching should adopt the model of a nature sanctuary.

The third type of whale watching occurs most often and attracts the widest range of ecotourists as well as scientists and documentary filmmakers. Profit is obtained through the combination of medium-level pricing and medium-range volume. This allows Azoreans to recruit clients from among tourists who are already traveling to the archipelago, while staying within what is considered an ecologically sustainable practice. Because this model fit preexisting conditions in the Azores, it was the model preferred by the great majority of interests in the Lajes and the Azores in general. It was ultimately adopted as the official model for whale watching in the Azores.

The biannual conference included presentations about existing scientific knowledge of whales and dolphins as well as about the history of whale hunting in Lajes. But most importantly, the conference provided a forum for the introduction of the first proposal to regulate whale watching in the Azores. This legal package was based almost exclusively on scientific data obtained and interpreted by scientists working in areas other than the Azores—at the time little scientific research had actually been carried out by the University of the Azores, and the few sources that existed on Azorean sperm whales had been obtained from dissected animals. In fact, regulations proposed for the Azores and the one created in New Zealand are almost identical.

Since the Azores were not understood to be a nursery area for whales, the legal document regulating whale watching in the Azores promoted the ecologically friendly commercial model for whale watching. This implied a conservation perspective of common resource management rather than a precautionary approach expressed by the model for whale watching in areas classified as nature sanctuaries. Following the logic of conservation principles, the legal document created a set of rules concerning how close boats could get to whales and dolphins, for how long, and at what speeds. The Azorean law did not institute restrictions on the type of boat and engine allowed to navigate around cetaceans because, according to the scientific information available at the time, there was no proof that the high-pitch noise these engines produced was disruptive to whales. Interestingly, the same group of scientists (see Magalhaes 2000) also admitted that more data and research were necessary before any firm conclusions could be advanced. Had the Azorean regulation been based on precautionary principles, whale watching would only be allowed upon the condition that they are first proven to be harmless.

This legal document further established that a maximum number of “12 platforms” would be allowed to operate whale-watching trips in the Azores. It was not clear for many operators whether this terminology referred to 12 boats or to 12 whale-watching companies, and it still wasn’t clear the last time I was in the Azores in the summer of 2002. It appears that the number of whale-watching licenses established by law was defined to sustain the status quo of the leading operators, rather than on the basis of either knowledge of the marine mammals of Lajes or the application of precautionary principles. Actually, at the time the biannual conference took place, 12 platforms was about the number of boats owned by the members of a whale-watching association, which did not include two additional companies that disagreed with the views of this dominant group of operators.

Since they manage wide ranges of critical information, the role of centralized governments and state bureaucracies in managing areas of common access cannot—and should not—be dismissed. But neither should the role of traditional ecological knowledge. In fact, it is quite reasonable to argue that a possible solution to the tragedy of the commons is co-management between local-level and national-regional governance (Ostrom 1990; Pomeroy and Berkes 1997; Smith and Berkes 1991). Often, however, conflict emerges among interested parties occupying various levels of governance that do not agree on which rules of access and practices will best secure the ecological sustainability of the commons, especially when they also aim to promote the economic sustainability of individuals and communities. This points to the difficulties implicit in any attempt to develop sound ecological knowledge or wisdom through which people become more ecologically literate (see Gunderson and Holling 2002 and Orr 1992).

### **Local Traditional Ecological Knowledge, Communication, and Ecological Learning**

Whether intentionally or not, the First Azorean Biannual Conference for Whales and Dolphins did not facilitate alternative understandings of how to develop whale watching in the Azores. This was partly because it was organized as a conference with formal presentations scheduled well in advance and partly because most of the discussions were based on scientifically informed rhetoric, which was, at times, difficult for nonexperts to follow. Science was the official language at the conference and, thus, as predicted by Beck (1992), all discussions concerning the risks posed by whale watching to the Lajence oceanic commons were co-opted into the bureaucratic context of writing policy from the perspective of techno-scientific knowledge. This served the interests of established whale-watching operators.

Among the “silenced” voices were those of former whale hunters—some of whom worked for whale-watching companies—as well as the owners of two other whale-watching companies, Calipso and Delos. These owners developed their own norms of whale-watching conduct out of precautionary

principles and a strong ethical commitment to the welfare of oceanic mammals. Following Arne Naess (1973), I have labeled them “deep ecologists.”<sup>5</sup> They also relied on the expert opinions of local and international scientists who reject abstract science in favor of context-specific and ethically informed approaches and who disagreed with the views put forth at the biannual conference.

The deep ecologists thought whale watching in the Azores should develop a sanctuary area, as proposed in the high-end model. They argued against the general consensus at the conference that the area adjacent to Lajes was not a nursery area. They insisted that they were dealing with resident whales who mated, reproduced, and reared their offspring in the oceanic areas adjacent to Lajes. The whalers argued that they knew this from their own experience as whale hunters and that hunting had historically been restricted to the summer months because of the weather rather than the absence of pseudomigratory whales.

Former whale hunters working for Calipso contended that in the summer of 1998, whales were already showing signs of stress. Whales were not feeding their offspring properly and often frantically tried to avoid the whale-watching boats. The deep ecologists argued similarly, stating that their knowledge derived from years of field research at sea and from shore with binoculars and from interviews with now-retired whalers. This view was also supported by an Azorean University faculty member who had observed whales for many months while conducting research on sea birds. They insisted on the addition of precautionary principles to the Azorean legislation that would only allow an activity to grow beyond a minimum upon proof that it was not threatening the welfare of the oceanic mammals. This translated into two main clauses that differed from the version presented at the biannual conference: 1) whale-watching boats should stay even farther away from the whales; and 2) zodiac boats with high-pitch engines should not be allowed around whales and dolphins.

Former whale hunters thought their traditional ecological knowledge of the oceanic ecosystem of Lajes was of no less value than scientific knowledge, especially considering that the latter referred mostly to research done elsewhere. The whalers also thought they had much knowledge to share about whale watching in the Azores. They defended a slow approach, meant to relax the whales, and contended passionately that this is extremely difficult to do with zodiac boats, since these boats maneuver rapidly and their engines produce a pitch that interferes with the whales. As one former whaler working for Calipso (who use a much bigger, inboard-engine boat) often put it “When I navigate towards a whale, I do it in such a way that she thinks I am just a companion, she is almost mesmerized...when those other guys do it, the whale is startled, often chased, and runs away” (personal interview, Lajes, July 1999).

It was at times irresistible to think of the former whale hunters of Lajes do Pico as ecologists in the sense that the literature currently uses the term. These whalers had been

exposed to international discourses on environmentalism, had learned from them, and now understood that for whale watching to be ecologically sustainable it would also have to be ecologically sound.

Notwithstanding the fact that the former whaler hunters did seem to have crucial insight to offer about the specificities of the oceanic ecosystem of Lajes, this traditional ecological knowledge of whales was associated at the conference with the killing of whales. It was only mentioned in sessions on the history of whale hunting and was presented as a hunting skill rather than a wider form of knowledge of whales and their ecosystem. Some of the presenters discussed the possibility that making the legacy of whale hunting too visible without "proper historical framing," might turn away ecotourists. As a response, the official discourse was that people had only hunted whales in Lajes for "survival," and that even though this activity had become the main marker for the identity of the inhabitants of Lajes, it belonged to the past.

Compared to the former whale hunters, the whale-watching operators I call deep ecologists were much more effective in voicing a critique and alternative proposal for the regulation of this activity in the Azores. On the one hand, they worked alongside scientists known to be deep ecologists who, in being able to establish lines of communication between the views of abstract science and those of the traditional ecological knowledge, were quite effective in mediating discussions between various interest groups working to regulate whale watching. On the other hand, they had a strong sense of political activism and of the various venues for making their ideas visible. They used these means not only to put forth alternative views of whale watching for wide public discussion, but also to educate the public, economic operators, and government officials alike about context-sensitive local approaches to whales.

This highly public debate resulted in the mutual learning by all involved and, I would also suggest, in increased ecological literacy. In the end, these alternative voices were incorporated to some extent in the whale-watching regulation that was approved in the Azorean Parliament in 1999: Decreto Legislativo Regional nr 9/99/A (Regional Legislative Decree 9/99/A) ([www.espacotalassa.com/decreto\\_leis.html](http://www.espacotalassa.com/decreto_leis.html)). Although the Azores were still not recognized as a natural sanctuary for whales and dolphins, some precautionary principles were added to the law. Additional legislation is being produced to further ensure that the whales and dolphins of the Azores are not disturbed by practices of whale watching.

It would seem that this case confirms Ostrom, Gardner, and Walker's (1994:324) hypothesis that "as [individuals] learn more and more about the structure of their resource, the strategies used by other participants, and joint outcomes achieved, they can change rules such as to experience improvement over time." It would be a terrible mistake to forget, nonetheless, that even though "allowing individuals to talk with one another is sufficient change in the decision environment to make a substantial difference in behavior...promises made without external enforcers are to be considered irrelevant" (ibid.).

## Conclusion

This paper explored a possible theoretical framework for studying tensions between local understandings and practices for accessing common resources and state regulation of the commons through abstract science and expectations concerning international markets for ecotourism. To this end, it analyzed the interplay between space-specific traditional ecological knowledge of the oceanic environment of Lajes, economic decision making, and scientific knowledge, in the context of efforts to regulate this activity. With the introduction of whale watching in Lajes, historical forms of relating to the oceanic commons were disembedded both from local contexts as well as from locally derived understandings and practices of human-cetacean relations. The creation of governmental legislation at the First Azorean Biannual Conference for Whales and Dolphins attempted to define a capitalist model of whale watching, which precluded alternative views that defended a precautionary approach to the Lajence oceanic ecosystem, and thus defended a logic of commercial operation less focused on profit. However, local knowledge and understandings of common resource use were not entirely displaced in the "new" context of whale watching. In effect, a description of the process that followed pointed toward the partial reembedding of economic practices into ecological priorities rooted in local sociocultural understandings.

As I have argued in this paper, some of the Pacific literature (Aswani 1999; Crocombe 1994; Ruttan 1998) alerts us to the fact that in studying access to common-pool resources, we are dealing with people who base their actions upon complex processes that take into account locally developed environmental understandings and practices and local cultural views and political-economic processes, as well as the context of state bureaucracies that mediate between these realities and the workings of capitalist markets. Furthermore, bureaucratic policies that prescribe economic behavior are often guided by the dictums of universalized abstracted science and capitalist logic of profit which, more often than not, in failing to fully take into account the ecological specificity of particular localities, promote utilitarian interests instead.

In positioning themselves as the true guardian of whales, and thus defending a precautionary approach to whales based on traditional ecological knowledge, former whale hunters strategized to secure an important segment of the market for ecotourism from which they benefited economically. They saw whale watching as having the potential to disrupt the world of whales and thus threaten the sustainability of this activity for future generations. The former whale hunters' conceptualization of whale watching was thus a response to economic concerns and competition for access to whales in the aftermath of the prohibition of whale hunting in the new setting of ecotourism, which coincided with an altruistic respect for whale welfare. The articulation of the whalers' position as an alternative to dominant views promoted by bureaucrats and other economic agents led to a critical revision of some of the premises informing the regulation of whale

watching in the Azores. It also led to a successful interaction with alternative views of this activity, whereby the levels of ecological literacy increased for most of those involved.

In view of the above, I contend that *if* state institutions as well as nongovernmental organizations are truly committed to addressing dilemmas of common-access resources and developing effective ecological policies, they must let go of currently dominant managerial perspectives. That is, they must abandon the typical approach to environmental programs that follows a top-down linear cycle of assessment of environmental problems, definition of solutions, creation of environmental programs, implementation of these programs, and a posteriori follow-up of responses by those who are the target of these policies. I also argue that the social factors, culture, worldviews, human-environmental relations, and the material context that should be taken into account by environmental policy makers cannot be reduced to single, separate categories of phenomena seen as temporally and spatially contained. If anthropologists are to become more actively involved in studying environmental dilemmas in common-resource tenure, and potentially contribute to their solution, they will do well to begin by exploring the complexity of human-environmental relations and moving away from universalized assumptions about human nature.

#### Notes

<sup>1</sup>Hardin also failed to take into account "cross-scale interactions in nature" (Gunderson and Holling 2002:xxii) from which ecosystem resilience emerges. Thus, Hardin's work is also reductionist from the point of view of ecology since "so long as we accept only the axiom that there is a balance between exponential growth and environmental/ecological limits, then we are drawn to an inexorable Malthusian determinism" (Holling, Gunderson, and Ludwig 2002:15).

<sup>2</sup>Hardin's oversimplified model did not treat human perception of risk and its role in decision making adequately. Awareness of the potential negative consequences over use of a resource—for example, awareness that the overexploitation of fish entails the risk of destroying the food basis of a community—often leads people to regulate access to their commonly held resources.

<sup>3</sup>The use of the expression "tragedy of the commons" in this sentence is mine, though I would argue that it adequately reflects Beck's line of argument.

<sup>4</sup>All names of whale-watching companies are fictitious.

<sup>5</sup>Deep ecology calls for less anthropocentrism in human-environmental relations. It argues that we must go beyond a human-centered view of the interrelatedness of ecosystems, which fails to truly recognize that humans are embedded within the pattern that connects all forms of life.

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