

11 Modernity and beyond: the grand aquarium

This chapter focuses on the dualism of nature and society and practical and theoretical implications of anthropological attempts to go beyond it. I shall illustrate my general argument with reference to what I call “the regime of the aquarium,” emphasizing the growing role of the state in coastal management and the construction and acquisition of knowledge about marine habitat, particularly in the context of Icelandic fishing. In Iceland, the state has played an increasing role in fisheries management. This development has culminated in a system of individual transferable quotas (ITQs), a highly modernist regime that privileges capital, boat-owners, and scientific expertise, marginalizing labor, crews, and practical knowledge. Anticipated benefits of the ITQ system – in terms of economic efficiency, ecological stewardship, and safety at sea – are less than impressive. More importantly, the system has had far-reaching social implications. For one thing, over time the largest companies have rapidly concentrated quota shares. Also, a semi-feudal system has developed with a fundamental division between quota holders and those who have to rent quota – between “sea lords” and “tenants,” to borrow local jargon. A small class of boat-owners has become the *de facto* owner of the fishing stocks. Similar developments can be observed in several other fisheries (Committee to Review Individual Fishing Quotas 1999). The relative failures of current fisheries management, I suggest, invite a rethinking of the modernist regime and its assumptions of discontinuity, control, and hierarchy.

Aquaria usually owe their construction to the fascination with single species and individual animals. Like keepers of aquaria, marine biologists have typically focused on one species at a time – modeling recruitment, growth rates, and stock sizes – although recently they have paid increasing attention to analyses of interactions in multi-species fisheries. Fisheries management seeks to systematically affect the structure of fish populations by controlling the relative sizes of different species and year classes, through regulations concerning fishing effort, gear, mesh sizes, territorial restrictions, and so on. They may be difficult to administer at times and the results are not necessarily along the lines envisaged by those in charge, but it is generally assumed that things are “under control.” The dominant management response to the current problem

of overfishing in Western countries, including Iceland, is characterized by a preoccupation with single species, certainty, and expert control. That response, I suggest, is part and parcel of the dualistic, modernist project. Not only does it underline the boundary between the inside and the outside, observers and the observed, it fails to appreciate the nature and role of practical knowledge, misconstruing the relationships between humans and the environment.

The regime of the aquarium is not restricted to fisheries; as Scott (1998) has shown it goes with state power in high modernity. Indeed, some of the properties of that regime were laid out early on in Western history. Foucault (1973: xi) has argued in his work on the “birth” of the medical clinic that modern medicine signified a fundamental shift in the understanding of the human body, a “mutation in discourse”; in particular, the body was dissected and subjected to the scientific gaze and manipulation of supposedly detached observers. Western understanding of the ocean and its inhabitants has undergone a similar transformation. It is pertinent, paraphrasing Foucault, to speak of the birth of the aquarium. The oceans tend to be seen as a gigantic fish tank, scientifically managed for human purposes. Such a notion is the culmination of a complex cognitive and political history. Until fairly recently Westerners typically assumed that the supply of living resources in the ocean was a boundless one. Such a position, of course, was untenable in the long run. Many of the world’s major fishing stocks are threatened with overfishing, global warming, and pollution – oil, radioactive waste, and other byproducts of human activities – and fisheries more and more resemble other branches of industries in that the resource base is increasingly subject to deliberate human impact. For one thing, the boundaries of “wild” fisheries are increasingly becoming blurred, with exponential growth in sea ranching and fish farming, not to mention genetic mixing and engineering. Consequently, to think of the oceans as a boundless storehouse of living resources unaffected by humans really does not make much sense any longer. It would be far more appropriate to speak of the regime of the aquarium.

11.1 Environmental anthropology

The concept of modernism usually connotes at least three related characteristics: the dualism of nature and society, the notion of objective science, and the assumption of linear control. Thus Gudeman (1992: 151) defines the “modernist production regime” as a regime based on the idea “that the human and natural world can be organized and subjected to rational, totalizing control.” Scott (1998) uses similar terms. For him, “high modernism” is represented by

supreme self-confidence about continued linear progress, the development of scientific and technical knowledge, the expansion of production, the rational design of social

order, the growing satisfaction of human needs, and, not least, an increased control over nature (including human nature) commensurate with scientific understanding of natural laws. (Scott 1998: 89–90)

Nature, then, is presented as an inherently logical and linear domain and, accordingly, the project of the resource manager is likened to that of the engineer or the technician. The modernist approach to environmental problems, with its separation of nature and society, draws upon textual notions of scientific practice developed during the Middle Ages when it was customary to speak of nature as “God’s book” and to regard science as the “reading of the book of nature.” Before the advent of modernism there was no radical separation of nature and society in European thought; people saw themselves as integral parts of the world, embedded in nature. In a brief period, nature became a quantifiable, three-dimensional universe appropriated by humans. This universe represented a radical departure from the earlier, enclosed universe of the Aristotelians constituted by the Earth and its seven surrounding spheres.

The distinction between nature and society is central to both modern science and modernist culture. Such a dualism has not only been reinforced by a rigid academic division of labor and massive institutional structures, it also tends to be “engraved” in the financial and spatial organization of universities and campuses, in their architecture, layout, and budgets. Much social scientific thinking shares the main assumptions of the modernist perspective. Interestingly, the prologue to M.C. Bateson’s (1984) memoir of her parents, G. Bateson and M. Mead, is subtitled “The Aquarium and the Globe.” Apparently, her parents used globes and aquaria to give their daughter a sense of the integrity of the biosphere and the necessity of “building” a rational world for future generations, “to balance the needs of living creatures and their relationships with each other, the cycles of growth and respiration and decay” (Bateson 1984: 5). As metaphors, both globes and aquaria are highly modernist constructs; most importantly they position the observer outside the system observed, gazing at a separate reality, much like the medical practitioner in the Foucaultian clinic.

If disembeddedness, dualism, certainty, and human mastery are the characteristics of modernism, *postmodernism* suggests the opposite – namely, embeddedness, monism, and the absence of certainty and human mastery. For me, postmodern social science is committed to continuity, engagement, and the negation of the notion of the detached observer. It seems that at the dawn of a new millennium anthropological theory on human–environmental relations is rapidly moving in such a direction, resounding the *condition* of postmodernity (Harvey 1989), the declining faith in rigid dualisms, hierarchy, and the tendency to conflate theoretical spaces previously kept separate. In recent years, indeed, the distinction itself between nature and society has

increasingly been subject to critical discussion in several fields, including anthropology. And there are good grounds for second thought. For one thing, humanity has an embodied physicality that, by definition, naturalizes it, as Marx maintained long ago. Also, modern humans are presented with a “nature” very different from that experienced by earlier generations. Biotechnology and genetic engineering have revolutionized our capacity to analyze and alter DNA material, raising new and fundamental questions as to what constitutes “life” and “nature”; organisms are engineered and manufactured according to human designs and for human purposes. Human nature, then, must be a fleeting category.

Moreover, recent theoretical developments in biology have questioned the classic argument of Mendel and Darwin that organisms are autonomous objects dictated by genes and selective pressures. An emerging, alternative model emphasizes that the organism is empowered to shape its own development, the *subject* of evolutionary forces. The dialogic vocabulary of “co-evolution” and “niche construction” (Odling-Smee 1994) seems to be emerging in place of mechanical Newtonian notions. Any distinction between inside and outside (and, by extension, between nature and society) seems beside the point. It seems reasonable to assume that humans are simultaneously part of nature and society and that modern policy on the environment should be based on *that* premise, and not on the idea that humanity, or some part of it, is suspended above nature.

While criticism of the modernist project and its separation of nature and society has been fueled by recent developments, including the greening of public discourse, it is not a brand new phenomenon. The sixties and seventies, in particular, were characterized by growing doubts and discontent. Bateson, for instance, offered an early warning to the nature/society divide and the idea of absolute human domination, emphasizing that humans are part of nature, not external “autocrats.” The “arrogant” Western notion of “complete power over the universe,” he argued, was obsolete; in its place there was “the discovery *that man is only a part of larger systems* and that the part can never control the whole . . . *he cannot have a simple lineal control* . . . Life is not like that” (Bateson 1972: 413; emphasis added). Vayda and McCay (1975) challenged the cybernetic notions of homeostasis and explanation in the so-called “new ecology” of the time. And Wagner argued, from a different, “semiotic” perspective, that the distinction between the environment and the envired was an arbitrary one, fixed for the sake of analysis. It is worth quoting at some length an important and somewhat neglected paper:

Positivistic epistemology has generally favoured the notion of “levels” in the sense that the cultural is said to be an “abstraction from” nature – a replication of its “orders” via human artifice . . . In fact . . . the distinction is itself non-locatable, . . . nature is as much abstraction from culture as the cultural is an abstraction from nature. (Wagner 1977: 395–396)

Wagner's conclusion has a clear postmodern twist. In his view, nature and semiotics are so "completely and mutually continent of one another . . . that no boundary of any sort can be established between them"; this implies, he argues, "that the Cartesian duality is at once completely insoluble and largely irrelevant" (Wagner 1977: 409).

Postmodern criticism has undoubtedly enriched anthropological theorizing on environmental issues, drawing attention to relations of power, to Western anthropocentrism, to the problems with dualism, and to the inadequacies of the correspondence or mirror-of-nature theory of truth and the grand narratives of modern science on progress and control. Some postmodernist thinkers, however, leave it unclear how people should act with respect to the environmental crisis, dismissing the environmental problem as a "social construction." As Gare (1995: 97) argues, while the idea of a "global environmental crisis" can be shown to serve those who are attempting to mobilize people to address it, with their hostility to grand narratives radical postmodernists "leave environmentalists no way to defend their belief that there is a global crisis or to work out what kind of response is required to meet it . . . They are bound by assumptions which make the idea of a global environmental crisis incomprehensible." One wonders, indeed, given the social-construction perspective, how humans could possibly stumble on solutions to their problems.

Recognizing the contributions of postmodernist approaches to environmental issues, I suggest they also may have important drawbacks. I fail to see how one can develop an effective politics of the environment without some grand narrative, in the absence of any kind of theoretical authority in which we could ground reasonable and responsible claims about the nature and scale of the environmental problems we face. The Earth is a place to dwell in and to maintain its integrity and to avoid ecological bankruptcy we have to at the same time dwell and attempt to "manage." Grand narratives, whether we like it or not, seem to be a political and environmental necessity. Such narratives, however, should be constructed through a democratic process and, moreover, they should combine theoretical expertise and practical knowledge, the "cunning intelligence" summarized in the Greek term *mētis* (Scott 1998). And that brings me to my empirical example, modernist approaches to fisheries and their problems.

11.2 Icelandic fishing

Icelandic production discourse has undergone a series of successive changes as Icelanders have assumed new kinds of relations in the course of appropriating marine resources. To each phase in the development of Icelandic society corresponded a particular dominant "paradigm," an underlying framework of understandings and assumptions with respect to what constitutes production

and ecological expertise. One of the important changes concerns the discursive shift from land to sea at the turn of the last century. During earlier times, Icelandic farmers and landowners occupied a central position and, consequently, fishing was regarded as merely a supplementary subsistence activity. Fishing was not just a marginal occupation; it was also the subject of a cultural struggle. This can be seen from the fact that in the nineteenth and early twentieth century those in power tended to present fishing communities as “devoid of culture” (*menningarsnaud*), the source of degeneration, alienation, and deficient language. In the nineteenth century, however, as new markets for Icelandic fish were developed, especially in Spain and England, fishing villages grew and there emerged an expanding market economy. While for many Icelanders the agricultural community continued to provide the dominant cultural framework, the “essence” of the Icelandic way of life, the focus of discussions on economics and production inevitably shifted from the landed elite to the grass roots of the fishing communities as fishing became a full-time occupation and a separate economic activity. Early in the twentieth century, fishers and boat-owners gradually became the central agents of production discourse, replacing the landed elite as the economy shifted from stagnant agriculture to expansive fishing. In the process, agriculture was redefined as a burden to the national economy. Now, once again, with scientific management and a quota system in the fisheries, the discursive pendulum has swung in the opposite direction – from sea to land. Fishing remains a major economic enterprise, but the makers of knowledge and economic value are no longer fishers but the land-based owners of boats and fishing plants and the holders of scientific, textual knowledge.

With Iceland’s independence in 1944, fishing effort on Icelandic fishing grounds multiplied. In 1948 the Icelandic Parliament passed laws about the “scientific protection of the fishing grounds in the coastal zone,” in order to prevent overfishing of its major fishing stocks, particularly cod. Four years later, Iceland announced that it would extend its territorial jurisdiction from 3 to 4 miles and in 1958 it unilaterally extended its jurisdiction to 12 miles. In 1976, the Icelandic government extended the national fishing limits to 200 miles which marked the end of the last Cod War with Britain and West Germany. The domestic fishing fleet, however, continued to grow and catches, relative to effort, continued to decline. The first serious limitations on the fishing effort of Icelandic boats were temporary bans on fishing on particular grounds. By 1982 politicians and interest groups were increasingly of the opinion that more radical measures would be needed to limit effort and prevent the “collapse” of the cod stock. A boat-quota system was suggested in 1983 to deal with the ecological and economic problems of the fisheries, a system that would divide this reduced catch within the industry itself. The precise allocation of catches was debated, until it was agreed late in 1983 that each boat was

to be allocated an annual quota on the basis of its average catch over the past three years. This meant that some boats would get higher quotas than the rest of the fleet, a fundamental departure from traditional policy. And quotas were allocated to boat-owners, not crews. These developments highlight two important points, as the following discussion will show: the relative marginalization of the practical knowledge of fishers and the shift in the locus of power from labor to capital.

11.3 Experts and laypersons

In Iceland, some marine biological research already occurred by the end of the nineteenth century, but full-time research started later, in the 1940s. At the beginning of the twentieth century, most of the contributions to *Ægir*, the journal of the national Fisheries Association (which embraces most interest groups), were those of fishers, but gradually marine biologists entered the scene. With fishers being important agents in the expanding economy, marine scientists had to carve a space for themselves in the role of collaborators and apprentices. This is especially clear in the writings of Bjarni Sæmundsson, the pioneering ichthyologist. In the 1890s he traveled throughout Icelandic fishing communities to learn from practicing fishers:

I had the opportunity to observe various kinds of newly-caught fish, to look at fishing gear and boats and to listen to the views of fishermen on various matters relating to fishing and the . . . behaviour of fish. (*Ægir* 1921: 115)

Sæmundsson seems to have thought of himself as a “mediator” (*milliliður*) between foreign scientists and Icelandic fishers (*Ægir* 1921: 116), eager to learn from both groups. Scientific knowledge, along with the “practical knowledge” (*reynslupekking*) of fishers, he suggested, was “the best foundation for . . . the future marine biology of Iceland” (*Ægir* 1928: 102).

The pioneering biologists did not only regard themselves as humble apprentices, they were moderately optimistic about the immediate achievements of the scientific enterprise. Referring to the prospects of dealing with “the old mystery, the migration of fish,” Sæmundsson comments:

We should not expect . . . to be able to deal with everything and, thus, to answer whatever question we may have, for instance to establish the location of herring . . . at a particular time. That kind of knowledge is far away, although it is our mission (*hugsjón*) to be able to provide it in the future. (*Ægir* 1924: 144)

Such a mixture of mission and modesty was, no doubt, necessary in the beginning, to provide political and financial support for marine science. Gradually, the necessary trust and confidence were attained; fishers, boat-owners, and the general public participated in establishing fisheries science. Significantly, in 1931 one of the regional fisheries associations resolved:

The behaviour of most of the fish species we exploit is now known in most respects. The place and time of spawning . . . are topics which science has for the most part mastered. Nevertheless, there are many “dead spots” in our knowledge of fish behaviour. Little or nothing is known about what determines fluctuations in the catch. (*Ægir* 1931: 29)

At the same time, however, another discourse emerged which downgraded the expertise of fishers. While the editor of the fisheries journal urged fishermen to participate in discussions on the fisheries, he sometimes reinvented the biases of the earlier agricultural elite:

You fishermen! This journal is intended for you, it should be your guide and your voice . . . it should speak for you when you are busy at sea . . . it should enlighten those of you who live at the outskirts, at the margin where the profit is, but often, too, unfortunately, ignorance and poverty. (*Ægir* 1932: 159)

By the middle of the century, the subtle competition of the discourses of fishers and biologists seems to have developed into open confrontation. In 1947 the fisheries journal published an article that found it necessary to remind the readers of the journal of the significance of practical knowledge:

Fisheries research is . . . intimately connected to fishing . . . and naturally . . . it should be carried out in collaboration with perceptive fishermen and boat-owners . . . *This may not be particularly scientific, but we should keep in mind that the experience that perceptive fishermen have acquired after years of practice . . . must provide some kind of guidance to the scientists. It is no coincidence that the same men catch more than others year after year.* What matters most is their attentiveness and their perceptiveness with respect to the behaviour of cod and herring. Icelandic ichthyologists should recall Bjarni Sæmundsson who once remarked, in his well-known humble spirit, that he owed most to the fishermen of this country (*Ægir* 1947: 159; emphasis added)

During the cod wars, the biologists at the Marine Research Institute, established in 1965, emphasized the prospects of estimating the composition and size of the cod stock:

In recent years, the success of spawning for a given year has been extensively studied. We have obtained tentative estimates of the size of different year classes, but since such research only began recently . . . it is not quite clear . . . what each year class will supply for the fisheries. Before long, however, we should know, and then we expect to be able to predict, only a few months after spawning, the real size of the year classes. I am optimistic that in the future we will be able to make forecasts with more accuracy than at present. (Schopka 1975: 48)

Now, decades later, these words sound overly optimistic. Fundamental ecological relationships – including the relationships between the size of the spawning stock, the success of spawning, the size of the future fishing stock, and fishing effort – have turned out to be far more complex and difficult to establish than the biologists estimated.

The tone of humility and mutual learning typical for the pioneering biologists during the first half of the century has been replaced by claims about scientific certainty and folk “misunderstanding” (see *Ægir* 1964: 109). The element of trust that characterized relations between scientists and fishermen evaporated. One skipper provided the following observation:

When fisheries biologists realize that fishermen possess knowledge that they themselves do not have, and when these two groups begin to co-operate on the basis of each other’s knowledge, then we may envisage realistic knowledge about the quantity and behaviour of cod on Icelandic grounds. (Guðjón Kristjánsson, *Ægir* 1979: 595)

Another skipper remarked a few years later: “Fisheries biologists have no possibility of finding or counting the fish in the sea. They have no equipment for this purpose beyond those that fishermen have” (*Ægir* 1986: 33).

Skippers’ approach to the environment and the acquisition of ecological knowledge is very different from that of marine biology. Formal schooling is essential for Icelandic skippers, but they all seem to agree that most of their learning takes place “outdoor,” in the course of fishing. Skippers’ extensive knowledge of the ecosystem is the result of years of practical enskilment, the collective product of a community of practice. Skippers discuss their own research strategy as a dynamic and holistic one, allowing for flexibility in time and space. Usually, their accounts emphasize constant experimentation in the flux and momentum of fishing, the role of perpetual engagement, and the importance of “hunches,” intuition, and tacit knowledge. Somewhat ironically, the skippers’ approach is much closer to the postmodernist paradigm than the approach of marine biologists.

The practical knowledge of skippers and their crews, of course, is just as essential for the success of fishing expeditions as before. As we have seen, however, in a few decades fishers’ knowledge has increasingly been marginalized in public discussions and policy making. Why did this shift in discourse take place? One reason may have to do with changing paradigms in marine biological research. More importantly, though, Icelandic high modernity gradually ensured a strong connection between the state, capital interests (the owners of vessels), and marine science. During the Cod Wars of the 1970s, marine science played an important role; scientists supplied the arguments necessary for the “rational” management of the fisheries. In the words of Jón Jónsson, former Director of the Fisheries Research Institute: “Our rights will never be accepted internationally unless we are able to supply solid evidence, based on scientific research, for the dangers posed to our fisheries and our whole cultural existence” (*Ægir* 1947: 258). With the birth of the modernist fisheries regime and the grand narrative of marine science, the voice of fishermen was gradually subdued, if not silenced.

While the present management regime represents the apex of modernist management, with science in the leading role, there is a growing recognition of

the rhetorical context and the political role of marine science. This was triggered by discontent with the prognoses of the Marine Research Institute and its conservative recommendations regarding the total allowable catch. At the same time it illustrates the thin line between marine science and politics. The results and recommendations of both marine scientists and the economists responsible for the establishment and design of the ITQ system have also been challenged from within the scientific community, notably by researchers at the University of Iceland.

Since the introduction of ITQ management in 1984, and particularly in the years following the enactment of the fisheries legislation of 1990 whereby fishing rights became true commodities (fully transferable), the Icelandic fishing industry has undergone a radical transformation. ITQs have become increasingly concentrated in the hands of large vertically integrated companies, while the number of smaller operators has diminished (see Palsson and Helgason 1995 for a detailed early account of these structural changes). A large majority of participants in the fishing industry and the Icelandic public are deeply concerned about the concentration of fishing rights in the hands of a few. In public discourse the owners of the biggest companies are habitually referred to as “quota-kings” (*kvótakóngar*) and “lords of the sea” (*sægreifar*). Complaints are often raised that while fishing rights were traditionally the birthright of all Icelanders, now that they have become commoditized they will be inherited by the holders’ descendants like any other privately owned item.

Not only are quotas being concentrated with the biggest companies, new relations of “tenancy” have developed. These typically involve long-term contracts between large ITQ-holders and smaller operators, where the former provide the latter with ITQs in return for the catch and a proportion of the proceeds. One such arrangement, usually referred to as “fishing for others” (*veiða fyrir aðra*), has become increasingly widespread. In such transactions, the supplier of the ITQs is a large vertically integrated company that controls a processing plant and a trawler. A contract is arranged whereby the large ITQ-holder transfers ITQs to the smaller operator’s boat. The latter then fishes the ITQs and delivers the catch to the suppliers’ processing plant for a price way below the free market price. Understandably, the lessee boat-owners cannot make the same level of profits when fishing for others in comparison to fishing their own ITQs. As a result, they try to compensate for their losses by reducing the wages of fishers. Another form of ITQ-leasing, generally referred to as “ton-for-ton fishing” (*tonn á móti tonni*) takes place when a large ITQ-holder offers to pool one ton of his ITQs against every ton put forward by the lessee. The latter then goes out and catches the fish and delivers the catch to the lessor’s processing plant. In some cases of ton-for-ton fishing, regional fish markets act as the ITQ-brokers. Like the processing plants the fish markets require a steady supply of raw material, and in order to achieve this they sometimes buy a small “surrogate” fishing boat on which to “store” their ITQs

(to hold ITQs an operator must control a fishing vessel). These surrogate boats are rarely used for fishing; in fact, they are often unseaworthy.

The typical lessee operator is an owner of a relatively small vessel with a meager supply of ITQs or the owner of a so-called “eunuch” (*geldingur*) – a boat that has virtually no ITQs of its own and is solely operated on leased ITQs. Through ITQ-leasing boat-owners with small ITQ-holdings manage to prolong their fishing operations throughout the year. For the lessors of ITQs, however, participation in these new relations of production represents a rather lucrative business. By leasing its ITQs, a company can free itself from the expenses of actually catching the fish, while still procuring up to half of the market value of the resulting catch. These developments have led fishers to augment existing feudal metaphors by referring to the ITQ system as a tenancy system (*lénskerfi*). In this conception the so-called quota-kings are likened to medieval landlords, with the fishing grounds as their estate (*óðal*). Conversely, fishers and small-scale lessee operators become the “tenants” or “serfs” (*leiguliðar*), who are granted access to the fishing grounds on the prerequisite that they hand over their catch to the lessor’s processing plants. The lessor not only controls how many tons a tenant boat is allowed to fish, but also the duration and location of each fishing trip. As one skipper put it, “one must give in to almost every demand, because the quota-king makes all the rules, sets the price and everything.”

The discourse of resistance briefly described above seems to highlight the issues of agency and a labor theory of value (Helgason and Palsson 1997). In the case of the Icelandic ITQ system, the allocation of commoditized fishing rights to boat-owners has resulted in a privileging of capital over labor, shifting power from sea to land and widening the economic rift between boat-owners and their employees. Commenting on a young boat-owner who had given up fishing and turned to renting out his ITQs, one fisher remarked, “he isn’t working and that’s unnatural, a young man like him!” In the words of another fisher, “it necessarily adds a devilish aspect to the system when people can rent their quota and then just relax in bed.” These and related statements testify to a powerful folk concept of work, bodily experience, and labor value that resonates with the so-called medieval house view of production and exchange; wherein the merchant and the usurer were not held to be creating anything but immorally breeding money from money.

The issue of the ownership of fish and quotas is frequently contested. ITQs remain, according to the first clause of the 1990 fisheries management legislation, the “public property of the nation.” During debates on the 1990 fisheries laws, some members of the Icelandic Parliament raised doubts about the “legality” of the ITQ program, arguing that proposed privileges of access might imply permanent, private ownership that contradicted some of the basic tenets of Icelandic law regarding public access to resources. The laws that

eventually were passed categorically stated that the aim was *not* to establish private ownership. The real world of legal and economic practice, however, seems to have a momentum of its own. While quotas, according to the law, are not to be regarded as the private property of quota holders, quota shares may achieve the characteristics of private property as time passes. There has been a long discussion over whether quotas can be used as collateral for obtaining loans. The law seems unclear on this point, but economic and legal practice seems increasingly to recognize quotas as collateral, which is a further step in the recognition of quotas as private property, undermining the significance and effect of the statement in the current law on public ownership. Some evidence indicates that quota shares are gradually acquiring the characteristics of full-blown private property.

11.4 Beyond the modernist aquarium

The currently fashionable approach to fisheries in many Western countries, typically based on the allocation of individual property rights to fishing stocks in terms of shares in the “total allowable catch” (TAC) for a given species, has been developed in several contexts beside Iceland, including Canada, New Zealand, South Africa, and the United States. By instituting private property rights to the fishing stocks in the form of quotas, and letting the market regulate their distribution, it is claimed, rational production will theoretically be attained. Assuming a sense of responsibility among the new “owners” of the resource (the quota holders) and an unhindered transfer of quotas from less to more efficient producers, it is argued, privatization both encourages ecological stewardship and ensures maximum productive efficiency. The regime of fisheries management discussed above is informative in this context. The Icelandic ITQ system represents one of the pioneering ITQ systems in the world and as a result, perhaps, it reveals both the explicit and implicit assumptions of the theory of ITQs and the modernist perspective, with its emphasis on control and dualism. Also, in Iceland it may be relatively easy to detect and observe both intended and unintended consequences of modernist fisheries, since here, unlike many other contexts, including those where ITQs have been practiced, fishing is of central importance to the national economy. The ITQ “experiment” of social, economic, and ecological engineering, in a sense, is relatively uncontaminated by confounding factors.

As we have seen, the Icelandic case illustrates many of the pitfalls of modernism, the radical separation of nature and society and the preoccupation with order, hierarchy, scientific privilege, and control. Here a totalizing regime that concentrates wealth and power in the hands of a few boat-owners and marginalizes the practical knowledge of fishers and other “laypersons” has been established under the banner of progress and modernist science. Not only

is this regime grossly unfair, engendering inequality on an unprecedented scale, there are good grounds for questioning its reported beneficial role for sustaining fishing stocks. First, in attempting to remove both the economic actor (the quota holder) and the observer (typically the economist) from the realm of social relations and communitarian concerns, implementing the autonomous homo economicus of neoclassical economics and theorizing of “tragedies of the commons,” ITQs tend to manufacture irresponsible resource-users. Where ITQs have been instituted, cheating (the underreporting of catch) and the dumping of bycatch (low-value species and fish for which the producer in question has no quota) are identified as major problems of “monitoring.”

Secondly, given the chaotic processes of marine habitat, there is no guarantee that the practices of allocating total allowable catch and individual transferable quotas have the consequences anticipated by theorists and policy makers. Many environmental “goods,” it may be argued, need to be understood in a holistic manner, not as atomistic objects but as parts of a larger complex. Acheson and Wilson (1996) suggest that the “numerical” approach of current resource economics and marine biology, an approach that has much in common with the regime of the aquarium, emphasizing single species, linear relationships, and states of equilibrium, fails to account for the realities of many fisheries. Their empirical work shows that while fisheries are deterministic systems, because of their extreme sensitivity to initial conditions (“butterfly effects,” in the language of chaos theory) even simple fish communities have no equilibrium tendency. As a result, management faces forbidding problems when trying to explain the noise in ecological relationships. For example, it has been said about the relationship between recruitment and stock size, often a key issue for managers, that the degree of accuracy required for prediction is beyond any capabilities we might expect to achieve in a fisheries environment. Therefore, it becomes difficult, if not impossible, to know the outcomes of management actions such as quotas. This partly accounts for the failures of many attempts to manage fisheries, although the sheer level of fishing effort is, no doubt, a major problem generally.

The relative failure of the modernist regime and individual quotas of recent years to deliver the goods they promised and the social repercussions they entail suggest that it may be wise to look for alternative management schemes and alternative ways of understanding human engagement with nature. Pragmatism, with its emphasis on phenomenological perspectives, practical engagement, and direct perception, offers a way out of the modernist regime. According to the pragmatist school, the practitioner’s knowledge is an emergent phenomenon, situated in immediate experience and direct engagement with everyday tasks. Such a view, which starts with the assumption that all behavior is the result of the collaboration of person and context and that “personal” capacities arise from the mutual relations of individual and

environment, suggests a radical break with the Cartesian tradition, the detachment of the subject. A similar perspective may be applied to scientific practice. Thus, the idea of some Archimedean standpoint outside nature and history is frequently subject to critical discussion on empirical, ethnographic grounds, with the growing awareness that the modernist perspective fails to account for the actual practice of modern science. The proper focus should not, therefore, be the passive autonomous individual, but the whole person acting within a particular context. The Cartesian project has also been challenged by another related development: by recent theorizing on the human body that emphasizes the embodied grounding of cognition, experience, and learning. Much of our knowledge, according to this perspective, is tacit, dispositions engraved in the *habitus* of the mindful body.

The denigration of practical knowledge, evident in the Icelandic case, is a byproduct of high modernism. Scott (1998: 305) argues there are three reasons for this: the “professional” concern that the more the practitioner knows the less the relative value of the expert, the general modernist contempt for everything doing with the past, and, finally, the fact that practical knowledge tends to be codified and represented in a form which is alien to science. While *mêtis*, the intuitive intelligence of the practitioner and the painstaking attention to detail and the demands of here and now, is indispensable for the success of any kind of practical enterprise, it tends to be discursively relegated to the margin; high modernism, Scott (1998: 331) suggests, “has needed this ‘other,’ this dark twin, in order to rhetorically present itself as the antidote to backwardness.” The proper response to the modernist agenda is not romantic adherence to the past, the fetishizing of “traditional knowledge,” but rather a management framework which is democratic enough to allow for a meaningful dialogue between experts and practitioners and flexible enough to allow for a realistic adaptation to the complexities and contingencies of the world – in sum a communitarian ethic of “muddling through.” Those who are directly involved in resource-use on a daily basis may, after all, have highly valuable information as to what goes on in the sea at any particular point in time. It is important to pay attention to the practical knowledge of skippers, allowing for contingency and extreme fluctuations in the ecosystem. Some form of self-governance in fishing may be a practical necessity.

Self-governance, however, on the basis of practitioners’ knowledge, may invite a dubious commodity fiction of its own. In orthodox theories of learning, knowledge often becomes analogous to grammar or dictionaries. Given such a perspective, indigenous knowledge is sometimes presented as being like “cultural capital.” Much of the practitioner’s knowledge is tacit – dispositions inscribed in the body in the process of direct engagement with everyday tasks. A thorough discussion of what constitutes tacit knowledge and how it is acquired and used seems essential for both re-negotiating the hegemony of

scientific expertise and rethinking the relationships between humans and their environment. In this process, anthropologists can have a crucial role to play, given their ethnographic method and their routine immersion in the reality of the practitioners.

No doubt, the dualism of nature and society was highly useful in the sense that it made room for social scientific approaches to the environment within academies and universities traditionally dominated by natural science. As Benton (1991: 25) argues, “dualistic, anti-naturalistic programmes in the contemporary human sciences are best understood as primarily defensive reactions to the intellectual imperialism (and, in many cases, moral and political conservatism) of biological reductionist programmes.” Just as the dualism of modern social science was necessary to draw attention to the “collective” aspects of social life, to confront the individualistic bias of psychology, a dualistic academe with a relatively autonomous wing for social science was necessary to facilitate systematic discussion of some of the “social” aspects of the environment previously neglected by the paradigms of natural science. We may wonder, therefore, what will be the consequences if the nature/society dualism is suppressed. Will it mean that the projects of “development” and the “environment” become, once again, subject to technological fetishism and green revolutions, relegated to biology, genetics, and engineering – with all the (im)practical implications such reductionisms have had in the past? Is it necessary, perhaps, given potentially shrinking budgets for social scientific research and the power struggle within Western universities and bureaucracies, to staunchly defend a well-demarked social scientific camp? Surely, budgets are important, but I don’t think that stubborn adherence to the dualisms of the past is a realistic defense strategy, to address current problems of funding. Social scientists, in fact, might have been more successful lobbyists had they rejected the duality of the individual and the collective, the natural and the social.

11.5 Conclusions

There are profound problems, as we have seen, with modernist approaches to the environment. Icelandic fisheries management demonstrates many of the results. The system of individual transferable quotas, with its radical separation of nature and society and its division of winners and losers, both manufactures environmental irresponsibility and privileges capital and scientific expertise, marginalizing labor and practical knowledge. To move beyond the modernist approach represented by what I have termed the regime of the aquarium, it is essential to rethink human–environmental relations, including the nature/society divide. I have argued for a fundamentally revised division of academic labor; in particular the removal of the disciplinary boundaries between the

natural and the social sciences. Such a move should not be seen to violate the integrity of the discipline of anthropology; on the contrary, from early on anthropology refused to categorize as either natural or social. Anthropological practice, in my view, should be broadened, emphasizing intensive collaboration with a variety of “other” disciplines touching on environmental issues. The anthropology of the environment should be a dialogic affair.

Ellen has suggested that “[t]he more you talk about nature the more you create a meta discourse which relies upon its existence, and the more you give it a life as a ruling concept; in trying to get *beyond* nature and culture we reify an opposition” (1996: 29; emphasis in the original). That meta discourse, of course, as Ellen implies, is not an end in itself. However, it has been around for quite a while, and silencing it is unlikely to dissolve the opposition of nature and society; dualisms just don’t disappear because people stop talking about them. More crucially, there is an important sense in which this critical discourse *is* a highly useful one; it provides a framework for identifying and removing persistent obstacles to the understanding of human engagement with the environment. An important item on the management agenda is to understand practical ecological knowledge and the ways in which it might be brought more efficiently than at present into the process of resource management. Given the perspective of practice theory, practical expertise is the result of a simultaneous engagement of the human actor with fellow humans and the rest of the material world – to the extent that the distinction between the two “environments” of nature and society has no meaning.

Why, one may wonder, has the long theoretical conversation that sees humans *in* nature, engaged in situated, practical acts, been subdued most of the time in Western thought? While the dualism of nature and society has a dynamic of its own, driven by industrial capitalism and the successes of modern science, monism, too, has its critics. Plumwood (1991), writing on gender and ecology, suggests that one cannot really care for the environment if it is “simply” an unbroken extension of oneself. Such a position echoes the developmental views of Grimshaw (1986) with regard to dependent selves, the argument that too much conflation in a dyadic relationship (in marriage or a parent–child relationship, for instance) may have detrimental effects for the personal development of one or both of the partners – namely, a loss of autonomy or maintenance of dependency. Grimshaw (1986: 182–183) suggests that care and understanding “require the sort of distance that is needed in order not to see the other as a projection of self, or self as a continuation of the other.” For Plumwood (1991: 14) these points “seem to . . . apply to caring for other species and for the natural world as much as they do to caring for our own species.” While the loss of self-boundaries may hinder personal growth, resulting in neglect rather than care, Plumwood’s environmental argument is not convincing. After all, the extended notion of the embodied self – of *being* a

body and not simply having it – does not preclude the idea of bodily concern. Indeed, caring for one's health and fitness is a major, if not obsessive, preoccupation nowadays, and not simply among those who project their body as a fetish external to themselves. The dissolution of the mind/body dualism, currently fashionable among Euro-Americans, is frequently associated with healthy diets and care for the body. And if, for many people, the incorporation of the body into their notion of self signifies intensive bodily care, why should they neglect the environment once they reject the dualism of nature and society?

I have found it useful to draw upon Scott's (1998) treatise about high modernism. Scott's work tends to focus on agrarian discourse and the metaphor of gardening, a metaphor underlining the reconstruction of natural sites and the designed terrestrial space of botanical order, although it also refers to fishing. As a metaphor, the aquarium is no less compelling than the botanical garden. I hope to have shown that the dualism of nature and society, one of the corner stones of the modernist perspective and the regime of the aquarium, is *part of* the environmental problem in that it both obstructs understanding of the human predicament and the kind of change in human–environmental relations which is needed. It is important to develop an approach that fully integrates human ecology and social theory, adopting a monist perspective that conflates nature and society. Given such a perspective, the aquarium may be an effective key metaphor for the interconnectedness of the biosphere. For such a metaphorical association to make sense, however, one would have to relax some of the modernist assumptions. The aquarium will have to include the practitioner of science as well as the “layperson,” swimming – along with fish and other earthlings – in the household of life. For me, that amounts to a postmodernist anthropology of the environment, an anthropology sensitive to interconnections, relations of power, and social discourse.