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From catfish to organic fish: making distinctions about nature as cultural economic practice

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Abstract

This paper addresses the cultural economy of nature and the material culture of economic practice. Attending to ways that cultural notions about the biophysical world play key roles in political economic conflicts, discussion centers on two recent debates involving the cultural economy of seafood production and trade. The first debate is over whether the label "catfish" should include catfish imported from Vietnam into the United States; the second deals with whether fish and shellfish should be eligible to be certified "organic" under new US regulations. Analysis reveals that the key dynamic in these debates is not necessarily how people think about "nature", but instead is how people make distinctions about the world. Rather than focusing on what is natural or not, key actors make distinctions among both organisms and environments. The ways that different groups define and enclose the biophysical world works to distinguish places as either appropriate or not for certain kinds of production activities. The overall argument is that significance and meaning of the biophysical become implicated in economic geographies by making distinctions about the world that then become important for how economic activity can work. As such, cultural economic approaches should attend to the ways that the biophysical is involved in relations such as competition and international trade, while nature–society approaches should shift focus from Nature to specific aspects of the biophysical world.

Keywords: Cultural economy; Nature-society relations; International trade; Competition; Food; Seafood; Marine environment

"Never trust a catfish with a foreign accent." With this advertising headline, the Catfish Institute responded to a rise in US imports of frozen catfish filets from Vietnam by implying that there is something inherently wrong with imported catfish, making them untrustworthy by nature. Such cultural notions about the biophysical world, in which people make sense of that world in particular ways, play key roles in political economic conflicts. In their responses to economic challenges such as competition, different groups of people discursively construct various aspects of the biophysical in particular ways, and these constructions then further shape economic outcomes. As such, a central contention of this paper is that the cultural construction of nature is one medium of translation between the biophysical world and economic systems of value and exchange. Without positing separate realms of culture, economics, and nature, the goal is to examine

how meaning, materiality, and practice come together in particular economic debates and competitive situations.

To address the multiple dimensions of these culturaleconomic-natural relations, this paper explores two recent conflicts involving the cultural economy of seafood, both of which involve seafood labeling laws debated in the fall of 2001. In the first, the US Congress passed an amendment to the Agricultural Appropriations Bill that banned from being called "catfish" all catfish that are not the same species as that raised in the US. The debate over this law was based around distinctions between First and Third World river systems, and distinctions between different species of fish. In the second case, the US Department of Agriculture's National Organic Standards Board ruled that no aquatic animals are eligible for "organic" certification: fish cannot be organic. The debate over this decision was based on the ways that different groups of producers make distinctions between land and ocean, and between farmed and wild systems. Although both of these cases involve ways that particular meanings and definitions are adjudicated in the legal settings of the regulatory agencies and Congress of

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the US government, this paper focuses neither on the rule of law nor on the legitimacy or functionality of one system of distinction over another. Instead, the focus is ways that particular distinctions are made, and made to matter. Both of these cases produce geographical imaginations that are about distinguishing one kind of place from another based on cultural economic practices that make distinctions about nature.

1. Cultural-biophysical-economic relations

Examining how these cultural, economic, and biophysical dimensions interweave in the debates over catfish and organic fish, this paper makes two central arguments that link cultural economic and naturesociety approaches. First, cultural economic approaches should attend to the ways that nature—as material and semiotic-is involved in relations such as competition, international trade, and forms of economic activity. Second, nature-society approaches should focus less on the category of Nature. At work is not necessarily how people think about "nature" but, instead, is how people make distinctions about the world: how they make the world meaningful and intelligible in particular ways without necessarily bothering with what is nature and what is not. It is not my intent to posit force in the realm of culture instead of the biophysical; instead I aim to provide ways of giving attention to biophysical relations without resorting to the abstract category of "nature". The remainder of this section contends that while the focus on materiality and the production of space in both cultural economic and nature-society approaches provides opportunities for investigating these culturalbiophysical-economic relations, existing approaches to materiality and meaning of the biophysical can be fruitfully extended to yield new insights.

1.1. Materiality

While the biophysical has not played a central role in cultural economic approaches, materiality is very much on the table. Recent discussion suggests that the relationship between meaning and practice is key to the articulation of culture and economy, and attending to this relationship requires taking meaning quite seriously without divorcing it from material practice (Gregson et al., 2001). Simonsen (2001), for example, suggests that the full potential of cultural economic approaches does not come from treating the relationship as a historical one in which culture and economy or more or less alike, but instead from treating the relationship as an analytical one in which economic activities materialize meanings, which then influence economic practices and patterns. Focusing in particular on things and objects as vital for practice, Jackson (2000) argues for "rematerializing" geography by bringing back some of the material culture focus of earlier forms of cultural geography, while avoiding the object fetishism with which such geography has been accused.

These issues of meaning, practice, and materiality have been particularly salient in the literature on economic goods. Scholars addressing the culturalization of the economy argue that meaning, aesthetics, and signsrather than material goods—have become the primary commodity for sale (Scott, 2000; Lash and Urry, 1994; Geoforum, 2000). Unfortunately, by reducing cultural economy to just the culture industries, such as media and fashion (e.g. Scott, 2000), this literature misses all the ways that broader cultural economic practices involve materiality as much as image and sign. In contrast, scholars addressing consumption from a material culture perspective treat cultural economic practice as inherently interlaced with the material objects of everyday life and social interaction (Douglas and Isherwood, 1996; Miller, 1987, 1998; Bourdieu, 1984; Miller et al., 1998). However, little attention has been given to the significance of materiality in economic areas except consumption, such as production and trade, although recent geographical approaches increasingly try to work across a consumption-production divide (Jackson, 2002; Cook and Crang, 1996; Mansfield, 2003b).

Scholarship on nature-society relations provides quite different perspectives for analysis of the cultural economy of nature. One approach to the biophysical has been to examine the ways that processes such as seasonality, fixity of resources, and biochemistry influence economic activity and geographies of economic change (Goodman and Redclift, 1991; Goodman et al., 1987; Henderson, 1998; Boyd et al., 2001; Prudham, 2002; Walker, 2001; Mansfield, 2003a,c). This particular approach, however, has only recently addressed more culturally inflected questions about what people mean when they talk about nature, and how that influences both academic approaches and economic practice more generally (e.g. Goodman, 1999, 2001; FitzSimmons and Goodman, 1998). Such cultural questions have been substantially informed by a variety of theoretical, philosophical, and historical investigations into the provenance of "nature" in history and practice (Merchant, 1980; Latour, 1993; Evernden, 1992; Smith, 1984). Because the conceptual separation between nature and society as categories is created in practice, and then affects subsequent practices, the result is new relationships between nature and society, even as both are the outcome of historical practice.

Recent research by geographers highlights in new ways this nexus of cultural-biophysical-economic relations. Certainly there is a long history of geographical research on relationships among natural, cultural, and economic processes, including traditional cultural geography approaches examining how people shape the natural landscape (see Foote et al., 1994), cultural ecology approaches dealing with adaptation and the ecological functions of cultural practice (Netting, 1986; Ellen, 1982), and recent political ecology approaches incorporating questions of discourse and identity (Peet and Watts, 1996). Additionally, over the past fifteen year geographers have also taken up new questions in nature-society relations that reflect and contribute to the historical project of excavating nature (for a review of approaches, see Castree and Braun, 1998). Theoretical contributions have called for geographers to investigate the role of nature in myriad geographical practices while avoiding the reification of nature as a separate realm external to human society and practice (Castree, 1995; FitzSimmons, 1989). In geography as outside it, a dominant theme has thus been to examine socio-natural relations while rejecting both *realist* stances that posit nature as a non-social realm and *idealist* stances that posit that nature is simply a figment of imagination or the result of purely social relations (Haraway, 1991, 1997; Cronon, 1996a; Proctor, 1998; Demeritt, 2001). Empirically, a central theme of this research is the ways that cultural notions about nature contribute to the production of certain kinds of spaces. Often, these analyses focus on the ways that these notions are used to create spaces apart, which then justify certain kinds of social and ecological uses. The kinds of spaces that are set aside as spaces of nature include forests (Willems-Braun, 1997; Sioh, 1998), wilderness (Cronon, 1996b; Proctor, 1998; Delaney, 2001), mineral supply zones (Bridge, 2001), and sites of ecotourism (Redclift, 2001). A somewhat different but related research project has been to show that spaces that we tend to treat as *natural* may in fact be more social than generally acknowledged. Examples include oceans (Steinberg, 2001) and freshwater river systems (Kaika and Swyngedouw, 2000; Swyngedouw, 1999), which far from being 'external nature,' are central to the production of spaces of modernity.

1.2. Incorporating nature?

The combined emphasis on materiality and the historical geography of natural (and social) spaces seems to create new possibilities for thinking about how "nature" might fit into the larger cultural economic project, and how cultural economy might inform discussion of the production of nature. On the one hand, attending to material objects seems to make cultural economic approaches directly applicable to questions about the biophysical: what meanings do we ascribe to catfish, for example? How are those created in practice, and what economic effects do they have? However, the attention to purely social meanings seems to indicate that the biophysical itself is irrelevant, and that all that matters are the meanings that people enact in cultural economic practice. Further, attention to the mutual constitution of material objects and social meanings can lead to the notion that the biophysical world is simply an agglomeration of objects and spaces, such as a fish or an ocean. Missing is a sense of biophysical *processes*: cultural economy is fundamentally about *relations*, yet biophysical things are pure object.

On the other hand, attending to nature-society relations suggests that questions of nature can be central to cultural economy in that cultural economic practices involve making boundaries of various sorts by virtue of which people, places, and resources can be used in particular ways. However, just as attending to materiality in cultural economic studies does not solve the problem of nature because it reduces nature to material objects rather than complex biophysical relations, attention to the historical geography of a nature-society divide has the tendency to treat nature as a single object: nature. Questions then center on how nature is produced, the role of nature in economic processes, cultural constructions of nature, and the agency of nature. Even the majority of cases looking at specific aspects of the natural world tend to still cast this in terms of nature as a whole: constructing the forest as a space apart is cast as contributing to the material-semiotic separation between nature and society.

Although this general approach certainly has merit in that the category "nature" is of huge significance (as the various cases cited above show), what I want to suggest is that it is also useful to look at this nature-society relationship sideways, asking not about the role of nature as though nature were a single entity, but instead asking about the role of particular aspects of what we tend to call nature. How are certain objects distinguished from other objects? How are biophysical processes conceptualized within certain economic contexts, and how does that affect those contexts? What are the key distinctions that make one place different from another-make one place worthy of certain kinds of production and others unworthy, for example? As Michel Foucault asks about such forms of classification, "what is the ground on which we are able to establish the validity of this classification with complete certainty? On what 'table', according to what grid of identities, similitudes, analogies, have we become accustomed to sort out so many different and similar things?" (Foucault, 1973, p. xix). The point, of course, is that we can never establish the validity of classifications with certainty, but we can examine where classifications come from and how they work. As Bowker and Star (1999) argue "the creation and maintenance of complex classifications [is] a kind of work practice" (5) that creates (usually) invisible infrastructures that involve, among other things, "practical politics" (44). Classifying things as "human" or "nature" may play a role in particular debates and issues, but not perhaps in quite the dualistic ways commonly suggested, such that other types of complex classifications are important.

My overall argument, then, is that significance and meaning of the biophysical become implicated in economic geographies by making certain kinds of (often spatial) distinctions about the world that then become important for how economic activity and competition can work. At the same time, these economic activities enact these particular distinctions by giving them concrete materiality. The cases upon which I expand here are about how power dynamics between different groups define and enclose the biophysical world in certain ways, often in pursuit of economic gain. Whereas particular classifications and distinctions often become taken for granted knowledge, these are cases in which the process of making distinctions is more clear, and therefore they provide an opportunity for exploring the types of distinctions made about the biophysical world-without necessarily relying on the category of nature—and how those are important for economic activity.

2. American catfish and Asian imposters

Never trust a catfish with a foreign accent. These days, you just can't trust any Catfish that's not a genuine US Farm-Raised Catfish. It's no wonder so many imported Catfish wannabes are trying to smooth talk their way into making you believe they're one of us. They've grown up flapping around in Third World rivers and dining on whatever they can get their fins on. Genuine US Farm-Raised Catfish, on the other hand, are raised in pure, fresh waters and fed a diet of natural grains and proteins. All of our processing plants are even required to meet stringent US government regulations. So do what consumers are doing and look for the official seal. It's the easiest way of making sure that when it comes to great-tasting Catfish, we're all speaking the same language. For more information. visit us as www.catfishinstitute.com.

With striking xenophobia, the Catfish Institute (the industry marketing and lobbying agency) tries to convince US consumers, and in particular US wholesalers, retailers, and food service operators, to buy American. These ads warn: "Beware of imposters. Do not get duped by some slippery imported Catfish wannabe." ¹ This xenophobia is infused with developmental assumptions that "Third World" fish are inherently inferior to those grown in the modern and regulated US. In

addition, I argue here that this xenophobia is expressed through and constructs notions about the biophysical, and in particular about biophysical differences among organisms and environments. Economic debates over access to markets and the competition that arises with free trade and global integration works through the ways that distinctions are made, and made meaningful.

US catfish aquaculture (i.e. farm-raised fish) in the American south has grown significantly over the past several decades to become an economically important industry in several states, especially Mississippi, Alabama, Arkansas, and Louisiana. In 2001, the US industry processed 271 thousand metric tons of catfish, an amount 50 percent greater than ten years earlier. However, prices overall were down, and total sales, at \$410 million, were down 12 percent from the previous year (McGovern, 2002). Some in the industry attribute this decline in prices and total sales to over-production within the industry, as a number of new, large production facilities have recently come on line (SeaFood Business, 2001). Most, however, attribute the problem to a rise in imports of frozen catfish filets from Vietnam, which have been growing rapidly since 1995 so that imports in 2001 totaled eight thousand metric tons, worth \$21.5 million (NMFS, 2002). Although this still amounts to only three percent of total US production, US producers argue that these imports are driving prices down and putting the squeeze on domestic production.

The debate over this issue, and demands from the catfish industry, could certainly be cast in orthodox economic terms, and, to be sure, it often is. US catfish producers have filed an anti-dumping suit against the Vietnamese producers, and representatives from Vietnam respond to the issue as one of free trade, particularly in the wake of the Vietnam-US Bilateral Trade Agreement, signed in the fall of 2001 (at the height of the catfish controversy). But the US catfish industry, and their representatives in the US Congress, have developed another strategy as well, one that seems to avoid claims that the industry is simply asking for protectionist measures. Instead, the industry's strategy is to assert distinctions in the nature of the imported fish and their environments, distinctions that, they claim, turn into fraud the marketing of these fish as farm-raised, delta-fresh catfish. In particular, the industry has waged their campaign through a legislative battle to designate that Vietnamese catfish are not really catfish, and thus cannot legally bear the label "catfish". A result was a one year ban on calling imported catfish "catfish", passed in an amendment to the Agricultural Appropriations Bill in October 2001, followed by a permanent ban in the subsequent Farm Bill signed in May 2002. While in a sense this is simply a rhetorical strategy of convenience, what is significant is that this strategy hinges on producing and stabilizing distinctions about the biophysical, which is not the only, or even most obvious,

¹ These ads appeared in numerous magazines, including *SeaFood Business* (see May 2001 and March 2002 for the text reproduced in this paper).

way to make a protectionist argument. Two themes developed in the debate as it occurred on the floor of the US House and Senate and in discussion of it in the media: first is an environmental distinction between the Mekong and Mississippi Deltas, in which one is marked as dirty and the other as clean. Second is the issue of what counts as a member of a biological category: how do you draw lines around what can be a "catfish"?

2.1. Delta environments

As the ad cited above implied, one of the tactics is to question the cleanliness and trustworthiness of Third World environments. A companion Catfish Institute ad even more explicitly targets catfish from Vietnam's Mekong River, and suggests that these fish are physically inferior because of the aquatic environment in which they reside.

Try as they might, fish raised in areas like the Mekong River aren't the same as genuine US Farm-Raised Catfish. Not by the hair on their chinnychin-chins. They're not as tender. They're not as consistently mild and delicate. They're probably not even sporting real whiskers.

One of the more common tactics is to describe the Mekong as "dirty" and "nasty", and to argue that catfish (often called "basa" to avoid calling them catfish) are constantly exposed to "pollutants and other conditions". In one emblematic quote, Senator Hutchinson from Arkansas argued,

I understand the Vietnamese basa fish are raised in far different conditions. In the Mekong Delta, one of the most polluted watersheds in the world, basa are often exposed to many foul and unhealthy elements, sometimes even feeding off raw sewage (Congressional Record—Senate, 2001a)

In addition, and without irony, supporters of the labeling law attribute dirtiness of the Mekong not just to its status as a river of the Third World in general, but also to the use of Agent Orange, a dioxin-based defoliant, in the Mekong Basin during the US–Vietnam War in the 1960s–1970s (that it was the US that used Agent Orange is not stated). Representative Berry, from Arkansas, claimed:

That stuff [Agent Orange] doesn't break down. Catfish are bottom feeders and are more likely to consume dioxins that were sprayed as defoliants (quoted in Morgan, 2001)

All of these claims to dirtiness are despite the fact that both the FDA and US Embassy in Vietnam, based on site visits, dispute that there are any health or safety issues associated with Vietnamese catfish and despite that there is no evidence of Agent Orange or sewage in the river (Congressional Record—Senate, 2001a; Urch, 2001; Fiorillo and McGovern, 2001).

All of these statements about the dirty Mekong are contrasted with the supposed cleanliness of US production. The Catfish Institute ads themselves talk about the "pure, fresh waters" within which US catfish are raised. This theme of purity in the US is found throughout the discussion of these catfish.

It is important to note the conditions in which these fish are raised. US catfish producers raise catfish in pristine ponds that are closely monitored. These ponds are carefully aerated and the fish are fed granulated pellets consisting of grains composed of soybean, corn, and cotton seed (Senator Hutchinson, Arkansas, in Congressional Record—Senate, 2001c)

These pristine waters are not, however, the waters of the Mississippi itself. Whereas in Vietnam a large majority of the catfish are grown in cages that are placed within the river itself, in the US the majority are grown in constructed ponds, built directly on existing clay soils and filled with well water. Each pond is 10–20 acres in size, and there are over 144,000 acres of catfish ponds in the Mississippi delta region (Catfish Institute, 2002). Thus, although the implication is a dirty Mekong and a pristine Mississippi, the difference is actually between types of production systems that use river environments in different ways.

A critical dimension of this approach is that once the places are distinguished as being inherently different, it is imperative that no one then be confused about which environment is involved. Particularly common in the debate on the floor of the US Congress was outrage that Vietnamese producers might use labels that could cause confusion among food buyers and consumers about from where the fish may have come.

[The] package said 'delta catfish'. You immediately assume you are talking about the Mississippi Delta from where 50 percent of the aquaculture in the United States comes. But, no, that is the Mekong Delta that is being referred to in that package. It is misleading. It is unfair (Senator Cochran, Mississippi, in Congressional Record—Senate, 2001a)

The Vietnamese basafish claim to be delta fresh. There is no way that this can be possible and it misleads our customers (Representative Berry, Arkansas, in Congressional Record—House, 2001)

Here the dirty-clean distinction works to deny the "delta fresh" status of the Mekong Delta: even though

fish are raised in a river delta, the term "delta" belongs to the Mississippi. Vietnamese catfish, by their nature, are "Asian imposters".

2.2. Biological "order"

This is a provision... that basically calls catfish from this country catfish and catfish from any other part of the world not catfish. Remarkable (Senator McCain, Arizona, Congressional Record—Senate, 2001d)

Frozen fish fillets of an entirely different family of fish are imported and unlawfully passed off to customers as "catfish" in such large and increasing volumes that it threatens the future success of the American catfish industry (Representative Wicker, Mississippi, Congressional Record—Extensions, 2001)

In addition to issues about the Mekong environment, debate over labeling centered on biology: what is a "catfish"? The issue was taxonomy, that is, how closely related are Vietnamese and American catfish, and is that close enough so that all of them can share the same name in the marketplace? Imports from Vietnam are mainly of two species, both in the same genus (see Table 1): Pangasius boucourti and P. hypophthalmus, of the family Pangasiidae. The US-grown catfish are of the species Ictalurus punctatus, in the family Ictaluridae. Both Ictaluridae and Pangasiidae are of the order Siluriformes. Because both sides agreed on this basic taxonomic structure of these fish, debates were not over the logic of taxonomy or scientific validity, but rather over the significance and meaning of distinctions accepted from science. Debates were about how to make intelligible the relationships among groups of fish.

Those who were for the labeling law often simply asserted that these different species of fish bore no resemblance, arguing that we all know what a catfish is, and these Vietnamese imposters are not it.

Let us remember this important point: When consumers think of catfish, when we all think of catfish, we have in mind a very specific fish we have all

Table 1

Taxonomy of catfish, with humans for compariso	omy of cathsh, with humans for con	mparison
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Taxonomic level	Humans	Catfish
Kingdom	Animalia	Animalia
Phylum	Chordata (sub-phylum vertebrata)	Chordata (sub-phylum vertebrata)
Class	Mammalia	Osteichthyes
Order	Primata (primates)	Siluriformes
Family	Pongidae	Pangasiidae, Ictaluridae
Genus	Homo	Pangasius, Ictalurus
Species	sapiens	boucourti, punctatus

known. But that is not what the Vietnamese are selling. They are selling an entirely different fish and calling it a catfish (Senator Lincoln, Arkansas, in Congressional Record—Senate, 2001c)

These arguments suggest that we should distinguish carefully among different fish, and that to argue that they are all the same leads to unfair competition.

Those arguing against the labeling law made a similar, yet opposite, argument—we all know what a catfish is, and the *Pangasius* species are indeed it. Senator Gramm, from Texas, who with Senator McCain cosponsored an effort to repeal the law, said,

here is a picture of a very young one [*Pangasius* sp.]. If you put that before any child in America over the age of 3 and asked, what is that fish, what would they say? Mama, it's a catfish... Why do we want to call it anything other than a catfish? We want to call it something other than a catfish because of protectionism (Congressional Record—Senate, 2001a)

Thus, those arguing against the labeling law suggest that a catfish is a catfish, and that distinguishing between them is simply a protectionist ruse.

Both sides bolster their arguments with scientific perspectives on fish taxonomy. The central argument for labeling is that *Pangasius* sp. and *Ictalurus* sp. are not in the same family—just the same order. Numerous references are made to this distinction as a reason for disallowing the Vietnamese fish to be "catfish".

So not only are the channel catfish and the basa fish not members of the same genus species, they are not even members of the same family. They are only members of the same taxonomic order (Senator Lincoln, Arkansas, in Congressional Record—Senate, 2001a)

The central argument against a labeling requirement is that even though these species are in different genera and families, they are all in the same order and that order is the catfish order. As Senator Mc-Cain argued,

In this chart is ... a basa catfish—yes, the culprit. Here is the channel catfish. They are all catfish. There are 2500 of them. I don't have pictures of all of them. Now there is only going to be one recognized as a catfish in America, which are those which are raised in America—born and raised in America (Congressional Record—Senate, 2001a)

To give practical meaning to this scientific classification scheme, both sides used a discursive strategy of comparison. That is, they compared the level of relatedness between these different species of fish with other species that are already familiar. Noting that names such as "crab" and "shrimp" also denote large groups that contain myriad species related at different taxonomic levels, those arguing against the labeling ban explicitly made their comparisons in support of free trade. They highlighted two similar cases of seemingly arbitrary name definitions used to restrict imports. In the mid-1990s, France claimed that only French scallops could bear the scallop title; this case was brought to the World Trade Organization (the US supported the challenge), and France was forced to drop the claim. The other is a case in which the European Union has declared that only sardines from EU waters are sardines.² The US had supported a case against this definition, until passage of the catfish amendment, when the US Trade Representative decided to do so would be contradictory. To those against the law, these cases point out the perniciousness of these kinds of regulations, and that they could be used against US producers as easily as they could help them. We should make few natural distinctions between species and places, leaving

The strategy of those arguing for the catfish labeling law was similar in that it made comparisons with other species; it was different in that it did so not by resorting to economic rationalities, but instead by making distinctions within taxonomic orders seem to be both huge and commonsense. These comparisons are to say that, being in different families, *Pangasius* and *Ictalurus* species are as different from each other as x is different from y:

open as many options for trade as possible.

These two fish are only in the same order. Well guess what. Humans are in the same order—primates—as gorillas and lemurs. We don't say that lemurs and humans are close enough to call them the same thing. What about other animals? Pigs and cows are in the same order. If an importer was shipping pork into the US and passing it off to consumers as beef, we would rightly be outraged (Senator Sessions, Alabama, in Congressional Record— Senate, 2001a)

Distinctions of this kind are commonplace, so the argument goes, and many would be highly offended, or think it just plain silly, if someone tried to make these things the same. We are sure that humans are different from lemurs, just as we are sure that pigs, giraffes, yaks, water buffalo, and camels cannot substitute for cows (all these comparisons were made in debate). Then why should one species of fish no more closely related simply substitute for the other? Just as calling these fish "deltafresh" is a form of geographical confusion, calling them "catfish" is a form of species confusion, and thus fraud.

This amendment will help ensure that fish products are properly identified so that consumers are not deceived by the improper labeling (Senator Cochran, Mississippi, in Congressional Record—Senate, 2001b)

Here, making distinctions about both organisms and environments is about making logical extensions of existing practical knowledges. How people make these distinctions shapes and is shaped by economic relations of trade and competition, particularly with global production chains and the politics of free trade.

3. Organic farms and aquatic hopefuls

In October of 2001, the same month the temporary catfish labeling law was passed, another decision was made about labeling seafood products. In this decision, the National Organic Standards Board (NOSB) of the US Department of Agriculture (USDA) decided that "aquatic animals" (i.e. fish and shellfish) cannot be "organic". The new USDA standards for organic certification, which went into effect in late 2002, do not certify any particular product, but provide guidelines about the production requirements for certification for everything from farm crops and livestock to honey and wild plants-but not any kind of aquatic animal. The decision by the NOSB did include a provision for possibly developing guidelines for farmed fish, but determined that the organic label can never be appropriate for wild fish.

This decision was made after several years of highly charged debate between those in the organic movement, who opposed the organic status for fish, and those in the seafood industry (with a few allies in the organic movement) who supported it. The discussion here is based on analysis of a series of documents related to this debate, including NOSB aquatic animal taskforce reports and decisions, public comments from both the organic movement (primarily certification agencies) and the seafood industry (primarily salmon fishers and mollusk and finfish farmers), and media coverage, particularly in the seafood trade press. The issue over which people explicitly debated was the fundamental meaning of "organic", and whether a food product over which the producer has not had full "control" can ever be considered as such. Wrapped up in debate were divergent views of both oceans and farmed systems, conflict over who can rightly benefit from the price premium afforded organic goods, and the dynamics of the global seafood industry, in which aquaculture is increasingly in

² The WTO has since decided this case against the European Union's desire to limit use of the term "sardine".

a position to out-compete independent fishers, especially in the salmon industry. As such, many in both the organic movement and the seafood industry, especially in Alaska, saw this debate as central for defining their futures. In both, entire ways of life are built around both the cultural coherence and economic viability of particular material-semiotic relationships with biophysical systems and processes.

3.1. Improving the land

Invariably, all agreed that oceans are distinct from land. But precisely what aspects of these environments made them distinct, and the significance of these distinctions for food production and organic status, are quite different between those who are for and those against organic status for fish. For those against organic status, organic production fundamentally requires active intervention on the part of the producer; organic is about a set of "positive" practices to ensure stewardship of the land and uncontaminated products, which contrasts with a "negative" standard based on a lack of hazards such as pollutants. In this view, organic is a guarantee of a set of practices, not a particular kind of product, and control and management are the cornerstones of these practices-all of which is impossible in ocean settings.

The key to the use of the certified organic label on crops or livestock is the word "management"... The definition of management is: act or art of managing; conduct, control, direction. This means that in order to manage there must be control. There is not control in the raising of wild caught aquatic animals. Therefore there are few components of organic certification for crops and livestock that are compatible with the production of aquatic animals (Northeast Organic Farming Association of New York, Inc.)

The organic constituency argued that certifying aquatic animals would create consumer confusion and mistrust of the organic label, thereby undermining any progress that the organic movement and industry have made.

Consumers now realize that organic is not a product measurement but rather a set of practices that were used in managing the production of the product... Consumer's perception of organic certification would be negatively affected to the point that they will be bewildered (Maine Organic Farmers and Gardeners Association)

In part, the priority given to process (positive standards) as opposed to product (negative standards), is a response to the organic rule proposed by the USDA in 1997 that ignored the recommendations of the NOSB and did not reflect organic practices developed over the previous decades. The organic movement perceived this proposed rule as purposely weakening the meaning of organic to facilitate the industrialization of organic production. Thus the focus on positive practices, rather than minimalist standards around products, was a defense against this challenge to organic philosophy and practice (for more on debates about organic standards, see Guthman, 2000; DuPuis, 2000; Vos, 2000; Goodman and Goodman, 2001; Goodman, 1999). While some claim that this "movement" branch of the organic industry offers alternative, non-modern visions of naturesociety relations (Vos, 2000; Goodman, 1999), the ways that this process vs. product debate carries into questions of aquatic animals makes clear that those in the organic movement do make important distinctions about the natural world, especially about spaces and levels of control over those spaces.

In particular, those in the organic movement distinguish oceans and fisheries as being inherently outside of positive management systems. Those in the organic movement see aquatic systems and animals as fundamentally out of control: "there is no control in an aquatic system" (Northeast Organic Farming Association of New York, Inc.). Waters circulate widely, and fish move around: they do not stay put like a plant and cannot be herded like livestock.

How does one control/manage, and monitor the habitat of wild fish—the environment, fish origin, feeds/feed stuffs, and health care? The area of water that wild fish circulate is undefined and extremely large to effectively monitor (Organic Crop Improvement Association)

A key aspect of aquatic environments as out of control is that they are seen as inherently polluted, both because it is perceived that no one controls what happens in the oceans, and because the environment itself does not submit to human intervention.

The environment where the wild fish live cannot be clearly defined and reviewed to be free of pollutants. The large oceans mix the water around the globe, and there are numerous toxic spills and dumping that can migrate from one place to... another. There are dangerous pollutants found even in the most remote areas (Independent Organic Inspectors)

Statements such as these are presented without accompanying discussion of oceanographic patterns, analysis of ways in which waters mix, or the extent or type of toxic spills. Simply implying their fluidity is enough to suggest a homogeneous pattern of pollution types and levels. The oceans are treated as an undifferentiated space which has been uniformly dirtied by human activity.

In this view, because the ocean is inherently out of control, producers are unable to hold aquatic animals to account on a range of organic production rules, including those on "prohibited substances" (synthetic chemicals), on a suite of specific practices relating to the feed and health care of livestock (such as providing vitamins, appropriate housing, and freedom of movement), and on the origin of the animals and ongoing animal identification and tracking. Those submitting comments to the NOSB often outlined in detail why wild systems in particular do not and cannot follow any of these basic requirements, while at the same time making room for organic aquaculture. Wild aquatic animals swim in polluted water, eat foods they encounter in their environments, there are no provisions for health care or living environments, and the source of the animals is not known nor are they tracked throughout their lives. But in aquaculture it is conceivable that many of these factors can come under the control of the producer. Arguing that it is important to have the same standards for all types of production systems, the NOSB thus ruled that wild fish cannot be organic while it may be possible to develop organic standards for farmed fish (but not shellfish, as even farmed ones eat wild food).

Inhering in these issues of control over agriculture and lack of control over oceans are particular views on the relationship between organic production and natural ecosystems. On the one hand, the organic constituency tries to distinguish organic from natural, arguing that to see organic simply as "more natural" is erroneous because it moves back toward treating organic as a product standard, rather than a process. On the other hand, official definitions of organic and organic practices refer to ecological processes. The USDA's final rule on organics defines organic production as

a production system that is managed ... to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity (National Organic Program, 2000)

This definition does not refer to "nature" and the "natural", but it is centrally about incorporating and respecting biological processes such as nutrient cycling and biodiversity, refers to "ecological balance", and treats agricultural activities as types of ecosystem processes (see also definitions in Organic Trade Association, 1999). Yet in looking further at how the organic movement conceptualizes organics, what becomes clear is that "organic" is not simply about either distinguishing agriculture from nature or becoming more like it, but rather is about learning from *and improving on* natural processes.

Consumers pay a premium for organic products, understanding that they are supporting a production system that uses the tools of nature to both produce foods while improving the environment (Independent Organic Inspectors)

This idea of improvement is centered around the idea that agriculture is a soil-based system, and that organic production is designed to improve the land.

Organic production systems are soil based systems, dedicated to maintaining and improving soil fertility, and minimizing the use of non-renewable resources (Organic Trade Association, 1999, section 5.10.2)

So at the same time that there is the sense of emulating and building "ecological" systems, there is also the sense that organic farmers, with their knowledge and control over the system, can actually be *more* ecological; in a sense, organic agriculture is supposed to be "hypernatural".

In contrast, marine systems, because they are waterrather than soil-based, are not only out of control, as discussed above, but cannot be improved. In the oceans,

there can be no perceived notion of improving the environment, since there cannot be control of the aquatic environment (Northeast Organic Farming Association of New York, Inc.)

Not only is improvement of marine systems impossible, the only possibility is to harm the oceans.

While human action cannot improve wild, pristine, marine ecosystems, human action can degrade habitat and decrease their productivity. Human intrusion into marine habitat does not cultivate but instead often 'de-cultivates', meaning the sustainability of marine production is destabilized and threatened (NOSB Wild Aquatic Species Working Group Final Report, attachment)

Views of the environment, clearly central to notions of organic and what kinds of production can claim the organic label (and gain the price premium), are thus quite complicated. Organic is at once premised on emulating nature in that it is about creating ecological systems based especially on soil ecology, it is defined as control over agricultural inputs and processes, and it is treated as improvement of the environment. All of this is contrasted to the oceans, where there is no soil, control, or improvement, just fluidity and de-cultivation.

3.2. Managing the ocean

Those who are for developing organic standards for fish and shellfish (in both the seafood industry and organic movement) contest these conceptions of the oceans and definitions of organic on various grounds.³ A central theme in these arguments for organic fish is that, because wild systems provide the model of ecological functioning, it does not make sense to categorically exclude those places just because the food producer does not control production and make enough management decisions. As one leader in the organic movement argued,

When nature's wild areas are sufficiently undisturbed to develop such self-regulating systems (the goals we are trying to achieve on organic farms) why are such areas not certifiable as organic? By what logic do we certify the copy (the human-managed domesticated system) and not the original?... If [there are areas that] meet all the SYSTEMS requirements of organic farms, by what logic or ethics do we exclude such areas? Isn't doing so just another form of market "protectionism"? (Fred Kirschenmann, Farm Verified Organic)

As this quote shows, for some "organic" is precisely about emulating natural processes, and so to deny the organic status of the model is simply hubris and economic protectionism. This theme of original nature vs. the copy is central to the debate over wild vs. farmed salmon, which animated much of the discussion of aquatic organics in general. To many in the salmon industry-especially in Alaska-farmed salmon is not only a competitor in the market, but is seen as a completely different fish, with different socio-environmental characteristics and effects. Farmed fish is raised in largescale, capital intensive operations that both displace small-scale, independent fishers and create environmental problems including pollution and overfishing (for feed) (Naylor et al., 2000). And the fish itself is changed in the process: the difference between wild and farmed salmon is as evident on the plate as it is in the ocean.

It's like the difference between hamburger and filet mignon. You can very much taste the difference and see its quality (Carole Hamik, Homer, Alaska)

Thus, the idea that wild fish might be denied the possibility of organic status, while farmed fish could be organic (because production can be controlled), is both an economic threat and a cultural travesty: it just makes no sense at all.

Your recent decision to deny "organic" status for Alaska salmon and the stated reasons for that decision are so completely absurd as to defy explanation... If the untouched wild Alaska salmon stocks cannot be classified as organic under your standards then the term has no relevant meaning and your program has no reason to exist (Larry Johnson, Seward, Alaska)

In one sense, this seems to construct a human-nature split: nature is the original, external, "wild" realm from which people draw resources and that organic producers try to emulate. But looking further at how this argument is constructed reveals that, as with the organic constituency, what is most salient is not a distinction between humans and nature, but particular distinctions about the natural world and their relations to social processes. This argument challenges at root notions about both the farm and the ocean: the farm is neither properly soilbased nor is it a space of control, and the oceans are not simply an unmanaged space of fluidity.

First, those arguing for organic status for fish challenge the idea that organic farmers actually have very much control over their production systems. They suggest that the idea of control is misplaced, in that it focuses only on certain aspects of the production system, and not others.

The air that free-range livestock breath and the quality of water used in irrigation for growing plants and watering livestock is certainly not entirely under the control of organic farmers. It is impossible for an organic crop farmer to ensure that cross-pollination from industrial, non-organic crops does not occur in their fields. The notion that land-based organic farms have complete control over their products is simply an illusion (Alan Austerman, Senator, Alaska State Legislature)

In this view, terrestrial systems are not as bounded and clear-cut as they seem. To simply focus on soil as the medium misses the flows that comprise farms as much as fisheries. Treating aquatic animals as different is therefore just discriminatory, as this distinction is made on preconceived notions about the type of animal and where it lives.

³ A small group of organic growers and certifiers see organic seafood as a logical extension of the organic mission of producing healthy food and protecting the environment. Two of these organic certifying agencies actually have already certified several wild salmon operations as organic, actions which fueled the controversy over organic seafood and led to strife within the organic movement.

Organic farmers and ranchers do not control the quality of air used by their animals and plants any more than fishermen control the quality of ocean waters, yet land animals and plants are routinely qualified as being organic. Ocean fish live in water, which is their "atmosphere". To treat them differently than land animals would be illogical and blatantly unfair (National Fisheries Institute)

Air, water, and even soil nutrients do not stay put; they flow, and thus constitute spaces of connection rather than spaces apart. Although not explicitly stated in these terms, the goal seems to be to challenge the idea that farming is essentially "soil-based" by pointing out that it is also air and water based. The point is not that terrestrial and aquatic systems are the same, but that difference is not simply between stable soil vs. fluid water.

The second part of this argument is about the oceans. In one sense, the argument is that at least parts of the oceans are a space apart and are not uniformly polluted. In many cases Alaska residents describe local waters using words such as "pure" and "pristine", arguing that because Alaskan waters are distant from most industry, they are thus clean. An interesting twist, however, is that they posit that the health of Alaskan waters results not just from being a distant space of nature, but instead results from intentional management: the oceans are not as out-of-control as suggested by the organic constituency. Instead, the levels of pollution and the health of the fisheries are monitored and influenced by human activity.

We disagree that the wild system in Alaska [is] not adequately 'controlled'. Alaska's Constitution mandates that the state manage its marine environment to enable the sustainable harvest of our seafood resources. Several State, federal and private entities contribute to provide comprehensive marine management. Thousands of biologists, scientists, and managers, with a cumulative budget in excess of \$100 million annually carefully and continuously manage water quality, wetland and coastline habitat, adverse human impacts on the environment, and the health of aquatic species (Bristol Bay Economic Development Corporation [a Native Alaskan development agency])

According to the State of Alaska, there are over 20 state and federal agencies involved in management of Alaska's marine environment (*State of Alaska*). In this view, the key distinction is not between positive management on the farm and neglect in the ocean, but instead between "invasive" production systems in terrestrial agriculture and "protective" ones in ocean fisheries.

Invasive action would mean a producer is expected to restore ecological harmony and natural biological cycles to the production system... Management practices that maintain and promote ecological harmony and biological cycles... termed herein as *protective*, are what Alaska employs to manage its marine environment. Protective practices are no less legitimate than invasive practices (State of Alaska)

In other words, there are multiple kinds of practices that shape interactions between social and ecological processes to produce certain kinds of "natural" environments and food products.

Thus, those for organic status for fish suggest that the arguments against such status make no sense. They agree with those against organic status that it is difficult for fish and shellfish to meet the strict requirements set out for livestock (e.g. the vitamins, housing, freedom of movement, and animal tracking cited above). But they say that to impose the same rules on salmon and cows represents a profound misunderstanding of both farm and ocean systems. Arbitrarily applying to fish the regulations designed for cattle is a form of discrimination, and particularly makes no sense given that wild plants, honey, and marine algae (sea vegetables) can all be certified organic. In this view, the ocean does have different characteristics from land and marine organisms do have different life histories and requirements, but the ocean is not categorically different from the land in the sense that one is the uncontrolled realm of fluid and dirtied nature, where the other is the stable and controlled realm of human management and improvement. The categories-human-nature, water-soil-are not so pure.

4. Distinctive distinctions

There are several threads that stitch together these two cases and that highlight the nexus of cultural-biophysical-economic relations. The most apparent thread is that in both of these economic debates, people are involved in making culturally inflected distinctions about biophysical things, including organisms and environments. In the catfish case, US producers draw on "common sense" distinctions between other kinds of animals (e.g. giraffes and cows) to show that Vietnamese catfish and American catfish are nothing alike. Those arguing for free trade, on the other hand, draw on equally "common sense" non-distinctions among all fish that live in muddy rivers and have whiskers. Neither science nor references to "nature" can resolve the issue: it is not a question of right or wrong, but rather a clash of different sets of meanings about the world. In the organic case, to argue against certification rules for fish

and shellfish, the organic constituency makes key distinctions between aquatic and terrestrial organisms. To do so, they draw on, and produce, notions of farms as being soil-based and fisheries as water-based. But this way of making distinctions about biophysical processes and food production can be contested by making the non-distinction that farms, too, are water- and airbased. Further, those against organic status for fish distinguish wild fish from all other kinds of organisms, given that there are organic standards not only for crops and livestock, but also for honey bees, wild plants, and even wild algae (living in the ocean).⁴

The second thread highlighting the ways distinctions are made and become important is the ways these cases are about distinguishing between places. At first sight, the questions "what is a catfish" and "what is organic" do not appear to be geographical, yet examining these cases reveals that geographical imaginations are central to the kinds of distinctions that are made. Key distinctions are between the First and Third World, such that one river delta is legitimately a delta and another is not, and between the land and the ocean/aquatic systems, such that oceans can never be appropriate sites for organic production. This sense of producing spaces as quite different in kind resonates with some of the case studies cited above on the production of certain places (e.g. forests) as spaces of nature, but the key distinction in these cases does not seem to be one of natural versus social. Instead, the key distinction seems to be that between dirty and clean, between controlled and out of control. Both the Mekong river and the oceans in general are posited as *dirty*. This sense of dirtiness seems to be based on constructing water as a space of flow in which anything that is introduced into the system is fully mixed to form a homogeneously polluted mass. This is all contrasted with land, which is treated as solid and stable and therefore amenable to control, management, and, ultimately, *improvement*, be that in the form of an organic farm on which inputs are controlled and soil amendments added, or in the form of a farmer-built catfish pond, in which fish are fed agricultural products.

In all these spatial distinctions, there is a blurring of the categories of "nature" and "society". The notion of improvement is not entirely about the domination of nature, but is also about living in and with systems that incorporate various aspects of what we call nature and society. The same is true of salmon fishers and their advocates, who argue that both farms and oceans are at once managed and out of control. The practical knowledges expressed in these debates indicate that people might be more comfortable with "produced" (Smith, 1984) or "hybrid" (Latour, 1993) nature than is generally thought. Yet that does not mean that distinctions melt away. Clean and dirty, stable and fluid, controlled and uncontrollable are some of the key categories that work here to distinguish spaces from each other.

A third thread relates in particular to the themes of cultural economy, and those issues to which this literature has generally given less attention. The first of these relates to the biophysical and the ways that cultural practices that make distinctions about the biophysical are not separate from economic practices of competition, making a living, and accumulating profit. Making the world meaningful in these cultural economic practices involves incorporating, not erasing, biophysical objects and processes. The fish, the oceans, the rivers are all a part of these cultural-economic practices, as they are made intelligible in certain ways-ways that then do cultural, economic, and political work in the world. The biophysical world is thus central, both materially and semiotically, to cultural economic practice. Second, these cases show some of the ways that production, too, is a site of cultural economic practice (Mansfield, 2003b). Key issues are about where production is done, how, and by whom, and how meanings about the world become important dimensions of such decisions and power-laden outcomes. As such, it is not just consumers who ascribe meaning to the biophysical (e.g. meanings that lead them to buy one product over another), but producers and related actors also do so, leading them to produce in one way rather than another, to position their products in one way over another. Further, the economic goods themselves-the material goods being produced-do not become cultural only in practices of consumption. Catfish, salmon, and organic produce play important cultural roles (as well as economic ones) in production and trade, and this cultural role (as with the economic one) is not limited to abstract meaning, but to the material good itself and material practices of production. Third, and finally, the point in highlighting the cultural economy of production is not to create a strict production-consumption divide. Even in these contests about production and trade, the consumer is not entirely absent. The consumer is *invoked* in these contests, particularly around issues of consumer confusion and fraud. Gaining consumers' trust and business involves enforcing certain ways of distinguishing one aspect of the biophysical world from another. These cases show, then, that cultural economy as an analytical tool can help elucidate the importance of the biophysical in myriad settings.

In conclusion, this paper has shown that making distinctions about biophysical objects and processes is a key aspect of cultural economic practice. The catfish and

⁴ Even though they are not plants at all, algae are stationary and have what look like leaves and stems, so they are grouped with wild plants, for which management plans can be devised. But wild fish, because they are animals, are grouped with livestock—yet their biophysical/ecological characteristics preclude their meeting the strict requirements for organic livestock.

organic fish cases show that as different groups distinguish one part of the world from another they reinforce old and create new meanings about the world. The power dynamics involved in creating and enacting these meanings are such they often have to be adjudicated. Especially because these different meanings about the world are caught up in economic practice, they cannot simply coexist, but instead one view takes precedence over the others as a result of struggles over both meaning and economic outcome. In addition to articulating some of the ways that cultural economic analysis should incorporate issues pertaining to the biophysical, this paper is an attempt extend the nature-society question in new directions by asking less about Nature and Society, and more about the ways that people make the world around them meaningful. In many situations, these meanings may be less about nature, and more about what parts of the world are similar, what parts are different, in what ways, and why. Finally, many of these ways of making distinctions-making the world meaningful-are quite geographical. Even when they do not seem on the surface to be about spatial configurations, situations involve demarcating places as different from each other, and as appropriate for certain kinds of activities over others. Distinctions about space are thus one form of the type of cultural economic practice that involves the biophysical world without reducing that world to the abstract category of nature.

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