BETWEEN THE SPECIES

Issue IX
August 2009
http://cla.calpoly.edu/bts/

FISHING FOR A SUSTAINABLE FUTURE

Dr. Mary Lyn Stoll
Department of Philosophy & Political Science
University of Southern Indiana
Evansville, IN 47712
(812) 461-5244
mlstoll@usi.edu
stollml@yahoo.com

FISHING FOR A SUSTAINABLE FUTURE

Abstract: As the efficiency and reach of global fishing has grown, overfishing has unwittingly undermined the industry's future while at the same time depriving poor people of a dietary staple. Several problems that most concern the critics of globalization come into play: undermining the power of governments to protect their environments and citizens, an economic system that robs the poor and future generations of basic necessities, and market developments that undercut long term economic and environmental stability. I examine how creative institutional measures could avert total collapse of ocean ecosystems despite the complexity of enacting marine ethics in a globalized economy. I look at companies that work with the Marine Stewardship Council's criteria as well as more creative measures including revamped marketing and changes in how members of the industry work together in order to encourage long term environmental and economic sustainability.

FISHING FOR A SUSTAINABLE FUTURE

In many ways, the current state of global fisheries illustrates the dangers of pursuing relatively unregulated global economic development. After depleting fish stocks at home, trawlers moved on to decimate the seas of poor nations, their activities on the high seas often unregulated or subject to rules that meant little in the face of corrupt or ill-equipped agencies of enforcement. Just as companies may set up their charters from tiny post boxes on remote island nations to avoid facing penalties at home, so too fishing ships will fly under flags of convenience. If it becomes inconvenient to follow the stricter requirements of one government, a simple email or fax allows one to change the flag and the rules of engagement in minutes (Clover, 2006 p.137). Nearly all of the problems that most concern the critics of globalization come into play: undermining the power of state governments to protect their environments and their citizens, an economic system that robs the poor and future generations to serve the seemingly exorbitant desires of a wealthy global elite, and technological developments that ultimately undermine long term economic and environmental stability (Steger, 2003). In short, a collective race to the bottom ensues wherein there simply will be no viable fish populations left in the seas within another fifty years if significant changes in fisheries management are not put into place (Worm *et. al.* 2006 & 2009). The prisoner's dilemma applies in full force. While it is rational for each individual fisherman to fish as much as is possible, the collective decision to do so undermines the long term viability of what could otherwise be a sustainable industry.

I begin by discussing the ways in which the global fishing industry creates an array of seemingly intractable problems and explain how its problems are often thought to be typical of how business works under globalization. I then examine whether or not creative institutional measures could avert total collapse of ocean ecosystems and the economies dependent upon the health and vitality of those ecosystems. While the public often assumes that changes must be driven by activists and governments, I argue that business can and must be a part of any fully viable solution to sustaining aquatic ecosystems. I argue that even if governments lack the ability or political will to adequately regulate and manage marine ecosystems, companies can still better meet their moral duties to the poor and the environment. Companies ought to begin by investing in efficiency for sustainability and by working with certification organizations to empower customers to support responsible fishing with their consumer dollars. Companies can also invest in the future of the industry and the planet by setting aside reserves, and by taking a more creative approach to the role of fish in the marketplace on a number of fronts in order to meet their moral duties of environmental stewardship.

I. THE STATE OF THE WORLD'S FISHERIES: AN INDUSTRY BUILT FOR DISASTER

The United Nations' Food and Agriculture Organization reports that 80% of global fish stocks are fully exploited or overfished (at least among fish stocks for which data are available) (Gronewold, 2009). It should be noted that the United Nations' Food and Agriculture Organization (FAO) reports that world tonnage of fish goes up yearly, but the FAO is an agricultural organization whose primary goal is often agricultural rather than being focused upon environmental sustainability. It should also be noted that the FAO relies on self reporting by the fishing industry and has a track record of taking Chinese reports on fishing at face value, which

few regard as accurate. There are several scientific studies which provide evidence against the FAO's position arguing that global fish stocks are in fact much worse off. Reg Watson and Dan Pauly published a report in *Nature* which showed that the world's catch went up yearly since 1950 until it tapered off in the 1980's and began to decline. Watson and Pauly argue that there is actually a decline of about 770,000 tons in fish caught each year (Clover, 2006 pp. 21-22). Moreover, according to a study by Boris Worm from Dalhousie University in Canada, 29% of fish populations in 2005 were fully collapsed. Thus, if anything, global fish populations are likely in a worse state than FAO numbers would indicate. Lest one might be tempted to believe that this is a recent crisis, note that this same study finds that 65% of fish stocks that have been exploited since the 1950's have collapsed. If we continue on our current path, scientists warn the populations of all fish and shellfish will collapse by 2048 (Roberts, 2007 p. 330). While more recent research suggests there may be more hope for a few select fisheries if sustainable fisheries practices are put into place, the problem is that these measures are the exception rather than the rule. Those exceptional cases of well managed fisheries also tend to be off the coasts of richer nations like the United States, leaving poor nations who are most dependent upon fish in especially dire straits. Moreover, as with cod off the coast in Eastern Canada, some species may have already reached a tipping point beyond which they cannot recover even with the best fisheries management plan (Worm *et al*, 2009). This is not a case of just a few exotic species going extinct as a single tract of rainforest is razed. Rather, the entire population of the world's oceans may well be unable to support commercial fishing of any kind in a mere fifty years unless we change our fishing industries substantially and drastically. The economic damage alone is astounding. But once one considers the damage done to the world's ecosystems and the poor

who rely upon fish to survive, the incipient harm is appalling. All of this is without factoring in further population stresses that global warming will inevitably introduce as it progresses.

One might wonder how it could ever make sense for an industry to engineer its own demise. Each business member of an industry, after all, is generally thought to have at least a *prima facie* teleological moral obligation towards the continuance of that industry. The problem is actually the result of a multitude of factors. First, it is important to remember that fishing essentially runs according to a hunter gatherer economic system. Thus, the tragedy of the commons applies in full force. Imagine a trip to pick wild blackberries. You would likely take all you could thinking that by the time the next berry lovers ambled by new berries would have ripened for the taking. Problems arise, however, when too many gatherers are after too few blackberries. Since no one owns the berries, no one in particular is likely to keep you from taking too many from the commons. Fishermen have traditionally taken a similar approach as did our hypothetical blackberry picker. When specific species of fish did become economically nonviable, the skipper simply moved on to other species or new hunting grounds assuming that the fish had moved elsewhere. While this may have been true in some respects in the past, there simply are no more places to which the fish can flee. The fishing industry has gone global. While the nations of West Africa, for example, may not themselves have the investment capital to overfish their waters, the member nations of the European Union, Japan, South Korea, and Taiwan are more than willing to pay them bargain prices for the right to fish the waters of poorer nations now that their own national waters are depleted (Roberts, 2007 p. 328).

Even the deep seas, once thought to be of no commercial value, are now being trawled. As the fish species of shallower waters go into decline, deep sea fishing suddenly becomes more attractive. Deep sea trawling, the marine equivalent of clearcutting, occurs when fishing crews

drag nets across the seamounts where fish gather to feed and spawn. Complex ecosystems formed over decades or even centuries on layers of coral reefs are dredged up along with fish (Roberts, 2007 p. 295). The process alters ecosystems greatly as deep sea trawlers can reach over a mile below the surface (Roberts, 2007 p. 299). Deep sea trawling has already reduced fish populations in the Atlantic to just 20% of their 1970's levels (Clover, 2006 p. 94). One study of coral bycatch on boats searching for orange roughy found that a full metric ton of coral was dragged up to the surface with every 2.25 tons of orange roughy. Harms done to the deep seas are actually far worse since the fish who live below 3300 feet are more likely to live longer lives, reproduce in smaller numbers later in life, and live in aquatic habitats that simply support fewer fish by their very nature (Clover, 2006 p. 89). It is a bit shocking to think that your dinner may have outlived you several times over, but orange roughy probably live 150 years and take 20 years to reach maturity. Even when orange roughy does mature, it lays tens of thousands of eggs as opposed to the millions that cod would lay (Clover, 2006 p. 92). Deep sea fish also tend to have deciduous scales or no scales at all, which make them far more vulnerable to being harmed even if they manage to escape trawling nets (Clover, 2006 p. 91). Nets lost in the deep seas also continue to do harm long after their owners have fled. Because the wave currents in the deep seas are so weak, fishing nets stay suspended in the water dooming countless fish to meaningless deaths (Clover, 2006 p. 92). While the vulnerability of deep sea species is much higher, the regulations governing what would count as a sustainable yield are difficult to determine because scientists know so little about them. The global fishing industry literally destroys whole ecosystems faster than scientists can study them. This is especially worrisome since each year bottom trawlers clear an area the size of the entire nation of France. At this rate, it would take

the industry only 16 years to destroy every inch of deep sea habitat with bottom trawling if there was no overlap in trawling locations (Roberts, 2007 p. 330).

Fisheries have also been able to keep takings high despite their being fewer fish in the sea by using improved technology. Sonar developed after World War II proved invaluable to fishermen. With Doppler radar, GPS, and sea bed mapping technology, ships can sail straight to the fish (Clover, 2006 p. 77-83). Malcolm Clark, a fisheries scientist from New Zealand notes that, "Our understanding of how to exploit the resource has moved much faster than out ability to manage it" (Clover, 2006 p. 85).

Finally, there is one more reason the fishing industry is hurtling towards its own collapse. When scientists determine what a sustainable catch should be, the industry balks. They complain that they can see that there are still plenty of fish in the sea and that the scientists are imposing real hardships on human beings because of hypothetical risks to mere fish. Fishermen vote. Fish don't. So governments will often ignore the warnings of scientists. It also doesn't help matters that most fisheries ministers have positions designed to encourage the development of the industry understood in the short terms of election cycles, rather than looking towards long term environmental and economic sustainability.

II. FISHERIES COLLAPSE: THE POSTERCHILD FOR WHAT'S WRONG WITH GLOBALIZATION

Proponents of the global economy often argue that globalization will bring increased global access to the best technology and the ability to increase efficiency by producing goods and services where they can be procured most cheaply. Both of these measures should help the poor to participate in global economic growth. But it is precisely these two ostensive benefits of

globalization that are in many ways responsible for the collapse of global fisheries. As access to fishing technology improved and ships extended their reach into relatively unfished waters, the global fish catch rose to unsustainable levels. By fishing in the few areas which had once been sheltered from the impacts of extensive fishing, the industry unwittingly undermined its own future while at the same time depriving many poor people of fish that serve as a dietary staple. And the cycle repeats itself. Whereas improvements in technology in other sectors often lead to prices going down, as for instance in the production of chicken, beef, and pork, investments in technology for catching fish just make prices go up. (Fish prices have in fact gone up in the last thirty years while chicken, beef, and pork have gone down (Clover, 2006 p. 39)). This is because technology is used to increase the amount of the product available in other areas of agriculture. But in fishing, technology simply helps one to overfish wild stocks faster, resulting in more and more fish that are becoming increasingly rare being brought to market.

The poor are especially hard hit by the crash of fish stocks. Unlike fishing trawlers which can simply take off for another part of the sea, the poor have no such recourse. Jamaica, for instance, is now so overfished that Jamaicans have developed a recipe for fish tea, made by boiling a juvenile fish, and then removing fins, bone, and scales so that only the protein packed broth remains. Under better fish stock conditions these tiny young fish would never be harvested (Roberts, 2007 p. 235). Kiribati in the Pacific Ocean, for instance, gets just 5% of the landed value of tuna caught in its waters by the Japanese. Not only are the Kiribati stripped of their resources at bargain prices, the locals are forced to turn to hunting wild animals of the forest to get enough food to eat. This strips the forests and also brings people into closer contact with chimpanzees which may carry HIV and Ebola (Roberts, 2007 p. 329). And yet while the stocks of fisheries off the coast of Africa have gone down 50% since 1945 when industrial exploitation

began, the EU is still spending $227 million a year on access to distant waters in Kiribati and elsewhere (Clover, 2006 pp. 44 & 47).

A lack of strong global governance in international waters exacerbates the problem as it is often unclear who, if anyone, is responsible for ensuring that international treaties on fishing limits are enforced. The practice of flying under flags of convenience prevents the efforts of any one nation from being entirely effective. To circumvent local fisheries' management regulations, one need only change flags to a nation that does not want to or simply cannot afford to police one's activities. Flags of convenience are problematic on several counts. They encourage fishing operations not only to duck taxes and conservation requirements, but to neglect labor, safety, and training concerns as well. Moreover, according to the United Nations Convention on the Law of the Sea, a ship is subject only to the jurisdiction of the flag state if it is no more than 200 miles from shore and therefore in national waters (Clover, 2006 p. 147). So, a Canadian fisherwoman may watch cod swim past her only to be caught by Portuguese ships just a few miles outside Canadian national waters. The Canadian government ensures that the Canadian fisherwoman would face stiff fines if she fishes for the depleted cod within Canadian waters. But local officials generally cannot board or inspect ships outside their waters. Even when they do report illegal activity, the ship's home nation may well refuse to impose any fines. In one especially egregious case, Canadians inspected the Portuguese ship Solstico in 2003 finding that 65% of the fish on the ship were under a moratorium and they had satellite documentation that the ship was fishing in banned locations. But when Solstico came back to port in Portugal, the Portuguese found no infractions (Clover, 2006 pp. 171-2). The lack of a global initiative to keep fishing sustainable is a further problem. Fish don't just stay put. Even when nations like the United States established fishing limits in their own waters, other nations simply increase their

fish kill to compensate. So an endangered fish might swim past American ships only to be killed later in Japanese waters and then sent back to United States' markets. This takes away the motivation for fishermen to follow any rules since someone else will simply catch the fish and make the money if the virtuous skipper refuses to do so.

III. HOW CAN THE FISH BUSINESS EVER BE SUSTAINABLE?

Given how dire the situation is for the world's fish and how systematically corrupt and ill designed the global fishing industry and its regulators are, it may seem impossible to imagine that there could ever be a sustainable business approach to fish. But it is precisely because the global fishing industry is so deeply characteristic of the challenges that global economic expansion entails that it is so important that the world finds a way to handle the situation in a moral and just fashion. If we cannot save the fish and thereby the people and ecosystems that are supported by them, we will likely have little luck facing the slew of problems that globalization and industrialization more generally have left us. Anyone who enjoys the benefits of the global economy should be morally compelled to own up to its flaws and find a way to do better.

When it comes to industry finding ways to improve sustainability in its operations, the solutions run from the mundane to measures that seem drastically counterintuitive to many in business. The most obvious place to start is with efficiency, but efficiency understood in terms of the triple bottom line. Efficiency with an eye towards environmental sustainability is always a significant and easy first step when dealing with the destruction of the environment. Fishing ships can begin by reducing the amount of bycatch. The UN FAO estimates that one third of all fish caught are pitched overboard. That means that 29 million tons of fish are pulled from the

sea each year and never even taken back to port. This does not even count the aquatic life damaged by gear that never makes it onboard (Clover, 2006 p. 73). By investing in more selective gear and better practices, a great deal of damage can be averted. Deep sea trawling, given how especially destructive it is, should be abandoned altogether. For fishing communities that are not under the control of large corporate funded ships, a multitude of solutions can be found simply by devoting resources to education and finding more sustainable fishing methods appropriate to indigenous populations of both humans and fish. Since the poor in many places would not have overfished waters if not for the technologically boosted European ships off their shores, it is incumbent upon those who profit from fishing in the seas of poorer nations to recognize a collective duty to invest in community measures that ensure future fishing both for the poor natives and when feasible for their richer visitors.

In fact, there have already been a number of efforts to find ways in which the fishing industry and the environment can peacefully co-exist. Unilever, a fish buyer which owns Birdseye and Knorr actually developed an alliance with the World Wildlife Federation (WWF) to certify fisheries. This organization later came to be known as the Marine Stewardship Council (MSC). The MSC is now independent of both WWF and Unilever, but its blue eco-symbol appears on fish from 15 different fisheries. Although Unilever did not meets its 1996 pledge to source all of its fish sustainably by 2005, they were able to ensure that 56% of their fish came from sources which Unilever believed to be sustainable, 49% of which was MSC certified. The MSC requires that companies score 80% or better on three key principles: 1. The company cannot exploit the fish population 2. Takings must be restricted enough to maintain the fish population and 3. The company must respect local fisheries requirements (Clover, 2006 pp. 287-8). Whole Foods, Safeway, and even Walmart are using the MSC as a guideline in stocking their

wild-caught and frozen fish (Clover, 2006 p. 296). That said, although the MSC is a step in the right direction, the MSC rewards effort even if the company is not yet at fully sustainable best practice. Some worry that the MSC should not certify fish that are caught in areas where regulatory enforcement is lax (Clover, 2006 p. 288). Consumers and businesses will have to decide for themselves if a commitment to improvement is sufficient or whether tighter standards such as those provided by the Monterey Bay Aquarium, the National Audubon Society, and the Blue Ocean Institute better fit their own values and expectations. Even though Unilever's consumers may not have been clamoring for sustainability certifications, responsible companies can use their advertising budgets to let consumers know that their products, unlike those of their competitors, are sustainably sourced. Advertising which disseminates knowledge of how the fish got to the consumers' plate can help to create and fuel demand for sustainable business practices. Successful marketing efforts thus far are likely part of why Americans are already the fastest growing market for MSC certified fish (MSC.ORG, 2006).

One thing these certifications do well is to recognize that merely farming fish is not always a perfect or even adequate solution. Like intensive animal agriculture on land, intensive aquaculture in the seas is not without its problems. Both leave us facing the problem of what to do with mass quantities of waste concentrated in a single location. Domesticated stocks which escape to interbreed with wild stocks will also likely undermine the quality of wild stocks when they are already vulnerable. Domesticated animals also must be fed a steady dose of antibiotics and anti-parasite drugs because the conditions of their lives are so unhealthy. This raises issues for wild stocks that may be negatively impacted, for humans left to deal with more toxins and antibiotics dispersed through ecosystems, and, as with land issues, there are issues of whether or not it is fair to the fish to keep them in conditions so detrimental to their health. Finally, it is also

important to bear in mind that fish farming is generally only profitable with carnivorous fish. The feed for carnivorous fish usually comes from the seas, which simply encourages the industry to overfish every other species left that wasn't palatable to people. Moreover, there are the human health issues associated with concentrating toxins as they move up the food chain into carnivorous fish (Clover, 2006 pp.253-269).

In terms of setting limits to catch, while this is often helpful and occasionally sufficient, it also is not always the best solution. Limiting days at sea, for instance, only works for a brief period of time until technology catches up. Ultimately limiting days at sea encourages less responsible fishing since skippers will likely quickly catch all they can and be less likely to take only the highest quality older fish. Iceland's Individual Transferrable Quota system is somewhat better since it is based upon takings, but it too is problematic insofar as very poor nations would still be tempted to sell their rights too quickly just as Native Americans given property rights in their reservations sold them too quickly because they were so desperate for cash. Community ownership is likely necessary to ensure that the poorest of the poor can have some hope of managing for their communal long term best interests. Clover, incidentally, also endorses this position although he is perhaps more optimistic about ITQ's and the abilities of private property to work for rather than against sustainability (Clover, 2006 p. 250). While those who have ITQ's are more likely to police illegal takings, they are also more likely to feel entitled to catch whatever they want whenever they want. But fish are wild creatures who no more belong to the fishing industry than to any other individual human. They are our global heritage and are of value in terms of biodiversity in ways that mere property ownership would never guarantee. I argue that it is better to think of ITQ's, not as private property, which has its own checkered past when it comes to environmental issues, but rather in terms of a percentage of allowable takings

where the sustainable taking is set by best science in conjunction with the precautionary principle, not an actual share in the fish population, whatever that population may be.

Just as sweatshop labor practices in the garment industry can not be mitigated until buyers take responsibility for their subcontractors, so too the fishing industry will likely never become sustainable until fish buyers demand it and companies find ways to market sustainable fish sourcing practices effectively. Currently, while McDonald's fish fillet actually meets MSC standards, the fish served at five star restaurants often does not (Clover, 2006 pp. 281 & 186). Cullinary innovators need to take the lead in seeing the value added to a dining experience that can leave one with a clear conscience and not just a cleared plate. Rather than renaming fish or refusing to acknowledge which species is actually being served, chefs have a moral duty to let diners know what they are really getting. The moral duties here do not just accrue to fishermen out on the seas. Companies from all sectors can ensure that their catered events only serve sustainably sourced fish. Food processors must do the same. Endangered yellowfin tuna is routinely packaged in "dolphin safe" cans of tuna (Clover, 2006 p. 208). By not making it clear exactly which species are in the can, and instead leaving the information vague by demarcating only between light and dark tuna, the industry encourages unsustainable fishing. While many would blanch at the idea of eating an endangered rhino, many of us regularly eat endangered fish species unwittingly. Knowledge and transparency will be key to morally appropriate corporate practice. The entire network of corporate power that helps to prop up unsustainable fishing industries and processors can be brought to bear upon the fishing ships and processors to ensure transparency and sustainability. Until purchasers, both individuals and corporations, demand it, the value of sustainably sourced fish will not be able to win out in the market place.

Not all solutions to the ills of the global fishing industry are quite so obvious as simply relying on better and more efficient ways to fish or on transparency in the marketplace. Paradoxically for those in industry, the fishing industry can benefit itself and other industries simply by *not* fishing. While it seems antithetical to standard business production goals, the industry must learn to value not producing--to value the work it is not doing--if the industry is to remain viable. Only by giving the seas a rest can the seas continue to do the work of providing fish takings in the long term. Much like an athlete who can only reach top performance levels if she gives herself adequate rest, the fishing industry must learn to give the seas a rest in order to remain profitable in the long run.

Marine sanctuaries, places where fishing is forbidden, can be economically beneficial on a number of counts. First, there are the obvious tourism benefits. Part of saving the fish entails that people become better able to understand them. Just as we have learned that people objectify animals trapped in cages at zoos and see them as mere objects detained for their enjoyment, so too we need to realize that aquariums will likely be inadequate for the global change in attitudes that will be necessary if their populations are ever to recover from the harms already done. People can better learn to appreciate fish and the importance of harvesting them sustainably (if they are to be harvested at all) by viewing them as the wild creatures they are. In a marine preserve, snorklers and passengers of glass bottomed boats can marvel at the abundance of fish below the water's surface. We should not underestimate the financial opportunities the seas afford beyond the dinner table. Goat Island Marine Reserve in Leigh, New Zealand, for instance, was established for purely scientific purposes, but the busy tourist filled beaches are proof that it has become much more (Clover, 2006 p. 253). Visitors to marine reserves will also see how much larger fish can be when they are healthy. Hopefully greater knowledge of fish

will encourage consumers to demand more sustainable fishing practices if they do choose to eat fish. Not only does Goat Island increase tourism, it provides valuable knowledge about what a truly sustainable yield might look like. Rather than using already depleted stocks as a model, scientists can see what aquatic habitats look like with minimal human interference. If scientists can provide a better idea of what a sustainable yield would be, the fishing industry will be more likely to have a future too. Marine reserves also provide the safe harbor fish need to replenish stocks. On the borders of Goat Island Marine Reserve, for instance, the lobster catch is booming (Clover, 2006 p. 255). While it is important to value biodiversity for its own sake, making that a practical reality will often require finding ways to make biodiversity economically desirable. Marine reserves can do just that if only they are given the chance. Companies in the fishing industry that want to secure their own financial futures would do well to collectively support reserves both monetarily and with their advertising dollars.

Some companies object that far from having a moral and fiduciary duty to invest in reserves, they are actually entitled to a government pay out for leaving marine reserves unfished (Clover, 2006 p. 265). This argument, however, holds little moral weight. The fishing industry is already the primary long term beneficiary of the reserve. It is unfair to expect government to pay the industry off for not fishing in national waters that belong to the public or in international waters, which while they do not belong to any particular nation state, do not belong to industry either. It is especially problematic, moreover, to subsidize any further an industry which uses subsidies primarily to drive the industry itself into extinction by producing far too many fishing ships which then results in fisheries collapse. Finally, since it is in many ways the industry itself which has caused the problem, it is preposterous to insist that the industry should be paid to desist. In the case of national waters, this would be akin to expecting a landlord to pay off a

tenant who willfully destroyed the property while the landlord fixed the damage for him, rather than charging the tenant for the damages and insisting that he remove himself from the premises indefinitely. In terms of how many reserves would be needed, Dr. Bill Balantine from the Goat Island Mare Reserve, suggest that we would need to set aside 10% as reserves to achieve educational and research objectives, 20% for species conservation, 30% to ensure sustainable fishing, and 50% if the seas are to withstand the negative effects of intensive industrial fishing practices (Clover, 2006 pp. 262-3).

But reserves are not the only creative innovation that could help save the world's fish. JP Morgan and Innovest Strategic Value Advisors have announced a bond index that adds value to companies that take the lead in dealing with global warming (Reuters 2007). Analogous measures could be introduced to reflect the true value of the biodiversity of the oceans and the ways in which sustainable fishing practices add value to the industry as a whole unlike the status quo which accelerates its collapse. While this last approach may sound far fetched, somewhat similar creative strategies have already paid off for both crashing fish populations and for fishermen. The North Atlantic Salmon Fund, for example, asked owners of river fishing in Europe and North America to come together to buy out the commercial fishing capacity. The buyouts resulted in the River Tweed having its best fishing year since the 1960's. By buying out the commercial fisheries, the North Atlantic Salmon Fund got Northeast drift nets removed which helped the fish population to grow (Clover, 2006 p. 243). While this latter option may only work in cases where fishing is regulated sufficiently so as to make legal rights to the catch enforceable, it could be yet another creative way to help fisheries avoid collapse in some areas.

In sum, the state of the world's fish is dire and we simply can not afford to ignore it. The challenge of sustainable fishing should not be underestimated, but neither should it be dismissed

as impossible. There are a number of measures businesses can and ought to take even in a context of lax government enforcement and scientific uncertainty. Neither businesses nor consumers are entitled to shirk their moral duties to fish by claiming that improvement is impossible until governments institute global reforms. By investing in efficiency for sustainability, working with certification organizations to empower customers to support responsible fishing with their consumer dollars, by investing in the future of the industry and the planet by setting aside reserves, and by taking a more creative approach to the role of fish in the marketplace on a number of fronts, companies can do a great deal to meet their moral duties of environmental stewardship while still meeting their other fiduciary duties. In the long run, this is the only way the fishing industry could ever meet its fiduciary duties much less its duties of stewardship. Precisely because the problems with the global fishing industry are a sort of hyper case for the moral issues raised by globalized industries everywhere, it is especially important that business can find ways to rise up to meet the task at hand. The future of the industry and of the ecosystems which are our lifeblood depend upon it.

ACKNOWLEDGMENTS

I would like to thank the participants of the 14th Annual International Conference Promoting Business Ethics for their valuable insights and commentary on earlier versions of this paper.

BIBLIOGRAPHY

Clover, C. 2006. *The End of the Line: How Overfishing is Changing the World and What We Eat.* New York, NY: The New Press.

Dean, C. 2006. Study Sees 'Global Collapse' of Fish Species. *The New York Times*, 3 November.

Gronewold, N. 2009. Aquaculture May Replace Wild Fish Stocks. *Scientific American* (online), 2 March (Accessed 20 August 2009). Available from World Wide Web: <http://www.scientificamerican.com/article.cfm?id=aquaculture-replace-fish-stocks>.

MSC.ORG. 2006. USA Leads the Way with Eco-friendly fish (online), 6 December (Accessed 29 August 2009). Available from World Wide Web: <http://www.msc.org/newsroom/msc-news/archive-2006/usa-leads-the-way-with-eco-friendly-fish/?searchterm=best%20market>.

Norse, E. 2003. Marine Environmental Ethics. In D. Van De Veer & C. Pierce, eds. *Environmental Ethics & Policy Book: Philosophy, Ecology and Economics*, 3rd Edition, New York, NY: Wadsworth/Thomson Learning.

Reuters: 2007. JPMorgan Launches Environmental Corp Index (online), 27 February (Accessed 10 January 2007). Available from World Wide Web: <http://www.reuters.com/article/bondsNews/idUSN2741194520070227> .

Roberts, C. 2007. *The Unnatural History of the Sea*. Washington, DC: Island Press/Shearwater Books.

Steger, M. 2003. *Globalization: A Very Short Introduction.* New York, NY: Oxford University Press.

Whitty, J. 2006. The Fate of the Ocean, *Mother Jones* as reprinted & updated in D. Friedel, faculty evaluator, *Top 25 Censored News Stories of 2007* by Project Censored, (online)

(Accessed 10 January 2007). Available from World Wide Web:

<http://www.projectcensored.org/censored_2007/index.htm#3 >.

Worm, B., *et. al.* 2006. Impacts of Biodiversity Loss on Ocean Ecosystem Services, *Science* 314 (5800), pp. 787-790.

Worm, B., *et. al.* 2009. Rebuilding Global Fisheries. *Science* 325 (5940), pp. 578-585.