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WATER ETHICS

Foundational Readings for Students and Professionals

Peter G. Brown and
Jeremy J. Schmidt

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To the

Chapter 21

Fish First! The Changing Ethics of Ecosystem Management[1]

Carolyn Merchant

FISH FIRST! If we think about the theme of "fish first!," we see many nuances. Is it the most important thing for the individual fisher, for example, to take fish first above every other consideration? Or, should fish be caught first for the good of society and only secondarily for the good of the individual? Or, should the fish themselves come first before all human considerations? Do humans or fish or both have rights? Under what circumstances do fish win by being at the table rather than on the table? Each approach to policy entails a particular approach to management, and each form of management entails an underlying environmental ethic. We can see these approaches illustrated in the history of changing policies, ethics, and ways of managing the fisheries in the Pacific Northwest from the 19th century to the present. By identifying the ethical approaches underlying earlier policies, we can formulate the grounds for new ethics to guide future policy and management choices.

The first fisheries in the Pacific Northwest, started in 1823, occurred for the purpose of trading and marketing the chinook salmon. The period from the 1820s to the 1880s was marked by the progress of the *laissez-faire* market economy.[2] *Laissez-faire* capitalism was rooted in what we might call the "egocentric ethic," the ethic that pertains to individual fishers, or fishing companies, taking fish from the rivers and sea (Figure 21-1). Individual humans had rights of ownership over individual stocks of fish. The basic ethical, economic, and policy assumption behind the egocentric ethic is: what is good for the individual is good for society as

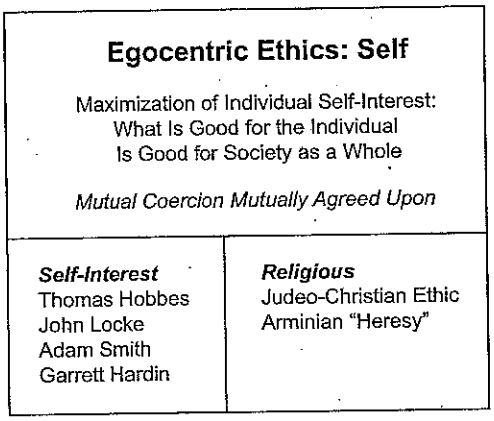

Figure 21-1 Egocentric ethics.

a whole.[3] An unregulated fishing economy, managed by individual and corporate fishers, and based on the freedom of the seas, developed as the West Coast was settled in the 19th century.

The second assumption behind the industries' development and management was that the fisheries were basically inexhaustible. If one particular fishery lost its productivity and profits declined, then the fishers could move onward to another fishing ground, leaving the first one alone to recover.[4]

A third assumption of the *laissez-faire* economic approach and its underlying egocentric ethic was that fish were basically passive objects. They were not living fish possessing individual spirits within them, which were equal to or even more powerful than a human being, but were entities of lesser value. They were passive resource objects that could be taken out of the environment. As commodities to be extracted from the state of nature, they could be turned into profit. Like the gold that had been discovered in California, fish were treated as gold nuggets, serving as the coin of trade.[5] The policy of taking fish from the commons, that is, from the state of nature treated as a commons for everybody, as a free-for-all, has been characterized by environmental historian Arthur McEvoy as the "fisherman's problem."[6] Based on the idea of the "tragedy of the commons," popularized by ecologist Garrett Hardin in 1968, fishing by individuals for profit degrades the environment.[7] When done

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competitively, it means there are powerful incentives to overfish, especially under common property regimes. When resources are owned in common, but used competitively, the advantage to each individual fisher is plus one, but the overall problem of the degradation of the commons is shared equally by all. So the loss is much, much less than minus one. Hardin's characterization of the "tragedy of the commons" led him to propose extremely tight coercive regulation as a solution, or "mutual coercion, mutually agreed upon." His solution, based on the assumption that human beings are an economically maximizing species, ignored the cooperative actions of subsistence-oriented peoples both in medieval Europe and in native and colonial America.[8]

A fourth assumption of the *laissez-faire* approach to fisheries management was that the fish themselves, once extracted from the commons, are forms of private property. Private property is a bundle of human rights and privileges obtained when an individual withdraws a resource from the commons. These ideas go back to the 17th century political philosophers Thomas Hobbes and John Locke who wrote about rights to ownership of private property—mixing one's labor with the soil, as Locke put it.[9] The idea of mixing your labor as a fisher with the seas to extract a fish is that, in that very act, you create ownership of the fish or the entire catch. Humans' property rights take precedence over the rights of fish to continue to exist. Barbara Leibhardt-Wester has proposed a very interesting comparison between Western culture's notion of private property as a bundle of human rights and privileges, with that of the Yakima Indian tribe of the Columbia River basin as a sacred bundle of relationships and obligations between humans and other organisms, such as fish.[10]

The Western idea of property stems from the Roman notion of bundles of sticks or fasces; symbols of authority and justice carried by Roman lictors as symbols of power, exemplified most blatantly in modern times by the fascist symbol of a bundle of sticks, emblem of the Italian regime of Mussolini. By contrast, the Yakima believed there were sacred bundles of magical objects given to an individual by a guardian spirit, defined, not as rights and privileges as in the Western system, but as relationships and obligations to other human beings, to the tribe, to nature, and to the spirit world. Thus under *laissez faire* capitalism, a very different

ethic replaced the native American belief system for managing the commons in the Pacific Northwest.

These nineteenth century efforts to extract fish from the oceans and rivers and export them as marketable commodities under the *laissez faire* system led to a collapse of the fisheries on the West Coast. In the 1850s, the first gill-nets were used on the Columbia River below Portland. They were combined with purse seines, traps, and squaw nets during the decade of the 1850s and 1860s. In 1879, fish wheels were introduced on the Columbia River; these were like ferris-wheels with movable buckets, attached either to a scow or to rock outcrops along the edge of the river. They operated day and night scooping fish out of the river and dumping them down shoots into large bins on the shore to be packed and salted. By 1899, there were 76 fish wheels on both sides of the river. In 1866, the canning industry began operating on the banks of the Columbia near Eagle Cliff, Washington, and by 1883, there were 39 canneries shipping to New York, St. Louis, Chicago, and New Orleans.[11]

What were the consequences of unregulated fishing? In 1894, the Oregon Game and Fish protector observed, "It does not require a study of statistics to convince one that the salmon industry has suffered a great decline during the past decades, and that it is only a matter of a few years under present conditions when the chinook of the Columbia will be as scarce as the beaver that was once so plentiful on our streams."[12] In 1917, John H. Cobb of the U.S. Bureau of Fisheries pronounced, "Man is undoubtedly the greatest present menace to the perpetuation of the great salmon fisheries of the Pacific Coast. When the enormous number of fishermen engaged, and the immense quantity of gear employed is considered, one sometimes wonders how any of the fish, in certain streams at least, escape."[13]

The solution of "mutual coercion, mutually agreed upon" (Garrett Hardin's approach) would have required extreme policing and strict laws leveled on the fisheries. The idea of a police state was certainly not compatible with the then current notion of *laissez-faire* and certainly not with the idea of the freedom of the seas. How then was the problem of the egocentric ethical approach to the decline of the fisheries resolved? It was approached by the passage of laws and regulations that would help to manage the fisheries and the fluctuating fish populations.

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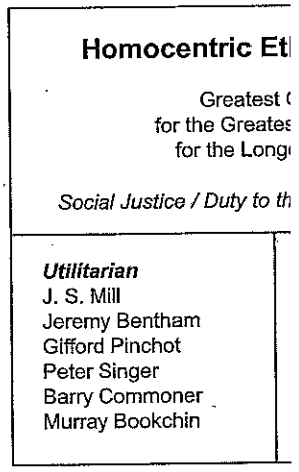

Figure 21-2 Homocentric ethics.

The new approach exemplified a second environmental ethic, the utilitarian or homocentric ethic that arose in the United States and in the Pacific Northwest as a result of more general problems of resource management. Forests, along with fish, wild animals, and bird—all organisms that were renewable, but in decline during the 19th century—were affected. The homocentric approach, or human society first and fish second, stems from the utilitarian ethic of 19th century philosophers Jeremy Bentham and John Stuart Mill.[14] It is concerned with the questions: What is the social good, rather than the individual good? What is the public interest, rather than the private interest of the individual or corporation? (Figure 21-2). The utilitarian approach to conservation ethics, as modified by Gifford Pinchot and W. J. McGee in the early 20th century, is based on the concept of "the greatest good for the greatest number for the longest time" and on the idea of duty to the whole human community.[15] But like the egocentric ethic, it gives precedence to the rights of the human species over those of nonhuman species. As applied to fisheries, homocentric ethics underlie the policies and practices of regulating and controlling the *laissez-faire* market.

In the United States, the concept of legal limitation was set out by the Supreme Court, which decreed in 1855 that those businesses "affected

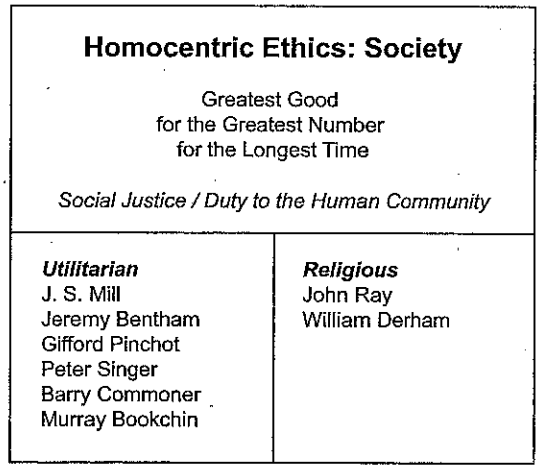

Figure 21-2 Homocentric ethics.

with a public interest" could be regulated.[16] Regulation entailed the utilitarian idea of cost–benefit analysis—that is, one must weigh both the benefits and the costs resulting from competing interests. In California, an important precedent was that of mining interests versus farming interests, two groups that each had a stake in the quantity and quality of the water flowing out of the Sierra. The rights and privileges of the two different interest groups were assessed in terms of costs and benefits, while natural resources such as fish were considered externalities. In the 1870s, California made fish and game state property to be regulated for the public good.[17] The State Board of Fish Commissioners was created "to provide for the restoration and preservation of fish in the waters of this state."[18]

The U.S. government participated in helping to manage and regulate fisheries through the creation of the U.S. Fish Commission. The first director, Spencer Fullerton Baird, promoted research and development along the Pacific coast to determine the varieties of fish distributed in coastal waters and to map the places where they occurred in greatest abundance.[19] If one knew the numbers associated with particular species in a fishery, that fishery could be managed according to the idea of maximum sustainable yield. The logistic curve, defined by Pierre François Verhulst in 1849, revealed the carrying capacity, or the maximum number of individuals that could be sustained without damage to the environment, while the fluctuation point represented the level of maximum sustainable yield, basically one-half of the number of individuals at the carrying capacity.[20] Fishers were to take only as many fish as the fish themselves reproduced in a given season.[21]

During the late 19th and early 20th centuries, the fisheries employed a homocentric ethic, exemplified by the idea of maximum sustainable yield, as the best approach to regulation and management. Yet there was still an enormous decline in the fisheries. Regulations were instituted in Oregon and Washington to control the technologies used. Fish wheels were outlawed and access to times of fishing curtailed. In 1877, for example, Washington closed the fisheries in March and April and again in August and September to give the fish a chance to reproduce. Oregon followed suit in 1878. The states also regulated the kind of gear that could be used. The mesh sizes of the nets were specified, and their use was lim-

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A bigger threat to the fisheries, however, occurred in the 1930s. This was the construction of large dams along the Columbia River and its tributaries. Dams for hydropower and flood control are examples *par excellence* of the homocentric ethic dedicated to the public good. Yet the public good did not coincide with the good of fish. Fish ladders and elevators had only limited effect in sustaining fish migrations, particularly those downstream.[23] The Chief Engineer of Bonneville Dam initially proclaimed, "We do not intend to play nursemaid to the fish."[24] In 1937, George Red Hawk of the Cayuse Indians observed, "White man's dams mean no more salmon."[25] By 1940, the catch of Coho salmon amounted to only one tenth of that taken in 1890. In 1938, the Director of Research for the Oregon Fish Commission, Willis Rich, said, "The decline is well below the level that would provide the maximum sustained yield. Such regulations and restrictions as have been imposed on the Columbia River salmon fisheries apparently have had very little effect in so far as they may act to reduce the intensity of fishing."[26] In 1948, the Army Corps of Engineers reported that over 300 dams had been built in the Columbia Basin: "Yet only in a few instances has any thought been paid to the effect these developments might have had on the fish and wildlife."[27]

It seemed clear that even this second approach to environmental ethics and management, the utilitarian or homocentric ethic, was ineffective. The concept of "the greatest good for the greatest number for the longest time" still meant human society first and fish second. By the 1950s, it began to give way to a third approach—the ecocentric approach, first formulated as the "land ethic" in 1949 by Aldo Leopold.[28] The ecocentric ethic is based on the idea that fish are equal to other organisms, including human beings, and therefore have moral consideration (Figure 21-3). As Leopold put it, "A thing is right when it tends to preserve the integrity, beauty, and stability of the biotic community. It is wrong when it tends otherwise."[29] We could expand his idea of the land ethic and call it a "land and water ethic." As such, "it enlarges the boundaries of the community to include soils, waters, plants, and animals

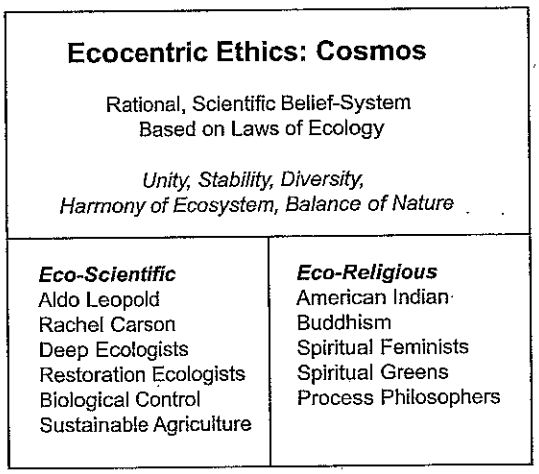

Figure 21-3 Ecocentric ethics.

[including fish] or collectively: the land."[30] It changes the role of *homo sapiens*, Leopold said, "from conqueror of the land community to plain member and citizen of it."[31] There is an intrinsic value to all living and nonliving things, and all have a right to survive. Fish, as well as humans, have rights and can even have standing in a court of law.

The idea that began to emerge in the 1950s and 1960s was that the fish themselves had a right to survive and that one should cooperate with each stock's own strategy for survival. The interaction between harvesting and environmental change and cooperation with the species' own strategy for survival reflected the new ecocentric approach to management. The conclusion that arose from these ecological considerations was that "the benefit to the nation occurs by leaving the fish in the ocean."[32] This was a policy of fish first and people second, or fish for the sake of the fish.

Developed in conjunction with this ecocentric approach to management was the idea of the optimum sustainable yield, a modification of maximum sustainable yield. The optimum level of harvest is the level that can be obtained indefinitely without affecting the capacity of the population or the ecosystem to sustain that yield. In practice, it meant that the population should be maintained at something like 10% above that of the maximum sustainable population. The optimum yield was the maximum

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sustainable yield as modified by any relevant economic, social, or ecological factor.[33] It meant that endangered species must be taken into consideration and that there would be limited entry to the fisheries. The idea of freedom of seas was challenged. Both the Fisheries Conservation and Management Act of 1976 and the Marine Mammal Protection Act of 1972 were based on the idea of maintaining the health and stability of marine ecosystems with the goal of obtaining an optimum sustainable population.[34]

What problems arise from this ecocentric approach? One problem is that even the idea of optimum sustainable yield retains certain kinds of assumptions. It is based on the idea, current in the 1960s and 1970s, that ecology reflects the balance of nature.[35] It retains the assumptions that the fish population will follow the classical logistic curve, that there is a fixed carrying capacity, that there is an absolute maximum sustainable level, and that nature left undisturbed is constant and stable. These are the classical assumptions of the concept of the balance of nature which was the motivating inspiration behind the ecocentric ethic and the environmental movement of the 1970s.[36] But the notion of the balance of nature has recently been challenged by ecologists, particularly population ecologists, and by ideas of chaos theory and complexity theory.[37] Chaos theory questions the idea of the constancy and stability of nature, the idea that every organism has a place in the harmonious workings of nature, that nature itself is fixed in time and space like the environment in a petri dish in a modern scientific laboratory—and the idea that the logistic curve is a permanent and final explanation.

Ecologist Daniel Botkin has proposed the idea of discordant harmonies as an alternative to the concept of the balance of nature. Botkin says, we must move to a deeper level of thought and

> confront the very assumptions that have dominated perceptions of nature for a very long time. This will allow us to find the true idea of a harmony of nature, which as Plotinus wrote so long ago, is by its very essence discordant, created from the simultaneous movements of many tones, the combination of many processes flowing at the same time along various scales, leading not to a simple melody, but to a symphony sometimes harsh and sometimes pleasing.[38]

The idea of discordant harmonies, theories of the chaotic and complex behavior of nature, raise the consideration that natural disturbances can in some cases be more rapid and drastic (as in fires, tornadoes, and hurricanes) than disturbances by human beings (forest harvesting, real estate development, and dam construction, for example). Moreover, natural and anthropogenic disturbances in conjunction with each other can amplify negative effects on the environment. Such observations have led to a questioning of earlier approaches—not only the egocentric and homocentric, but even the ecocentric approach—to environmental ethics and ecosystem management.[39]

As we go into the twenty-first century, I propose that we consider a new kind of ethic, which I call a partnership ethic—a synthesis between the ecocentric approach and the social justice aspects of the homocentric approach.[40] It is based on the idea that people and nature are equally important (Figure 21-4). Both people and fish have rights. We have the possibility of a win–win situation. For most of human history, up to the 17th century, nature had the upper hand over human beings, and humans fatalistically accepted the hand that nature dealt. Harvests, famines, and droughts were considered God's way of punishing human beings for acting in an unethical way. Since the 17th century, however, the pendulum has swung the other way and Western culture has developed the idea that

Partnership Ethics: People and Nature

—Equity between the human and nonhuman communities
—Moral consideration for both humans and other species
—Respect for cultural diversity and biodiversity
—Ecologically sound management is consistent with the continued health of both the human and nonhuman communities

The Greatest Good for the Human and Nonhuman Communities Is in Their Mutual Living Interdependence

Figure 21-4 Partnership ethics.

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humans are more powerful than nature and that we, as European Americans, can dominate, control, and manage it.[41] Because humans are above nature, we can control the fisheries, for example, through such ideas as logistic curves and maximum or optimum sustained yields. We need to bring the pendulum back into balance so that there is greater equality between human and nonhuman communities.

The partnership ethic I propose for consideration is a synthesis of the ecocentric approach based on moral consideration for all living and nonliving things, and the homocentric approach, based on the social good and the fulfillment of basic human needs. All humans have needs for food, clothing, shelter, and energy, but nature also has an equal need to survive. The new ethic questions the notion of the unregulated market, eliminating the idea of the egocentric ethic, and instead proposes a partnership between nonhuman nature and the human community.

A partnership ethic holds that the greatest good for human and nonhuman communities is in their mutual living interdependence. A human community in a sustainable relationship with a nonhuman community is based on the following precepts: first, equity between the human and nonhuman communities; second, moral consideration for both humans and other species; third, respect for both cultural diversity and biodiversity; fourth, inclusion of women, minorities, and nonhuman nature in the code of ethical accountability; and fifth, that ecologically sound management is consistent with the continued health of both the human and the nonhuman communities.[42] We might come back to the notion that Barbara Leibhardt-Wester proposed in her comparison of native and European Americans—the idea of the "sacred bundle." Like the Native American sacred bundle of relationships and obligations, a partnership ethic is grounded in the notions of relation and mutual obligation.[43]

What would a partnership ethic mean for ecosystem management? How would it be implemented in the fisheries professions? Each stock of fish has a home spawning stream and an ocean habitat connected over many miles of river. Each stock has a season for returning to its primal ecological community to reproduce. Seasonal changes, as well as chaotic disturbances in ocean currents, temperature changes, and predation, affect recruitment. So do human disturbances, such as timber removal, erosion, watershed pollution, dams, and fishing quotas and regulations. In each linked human and nonhuman biotic community, all the parties and their

representatives must sit as partners at the same table. This includes knowledgeable fishers (individuals, corporate, and tribal representatives), foresters, dam builders, conservationists, soil and fishery scientists, community representatives, and spokespersons for each stock of fish affected. The needs of fish and the needs of humans should both be discussed. Examples of such efforts at partnerships include resource advisory committees, watershed councils, self-governing democratic councils, collaborative processes, and cooperative management plans.

Consensus and negotiation should be attempted as partners speak together about the short- and long-term interests of the interlinked human and nonhuman communities. The meetings will be lengthy and might continue over many weeks or months. As in any partnership relationship, there will be give-and-take as the needs of each party are expressed, heard, and acknowledged. If the partners identify their own egocentric, homocentric, and ecocentric ethical assumptions and agree to start anew from a partnership ethic of mutual obligation and respect, there is hope for consensus. A partnership ethic does not mean that all dams must be blasted down, electricity production forfeited, and irrigation curtailed for the sake of salmon. It means that the vital needs of humans and the vital needs of fish and their mutually linked aquatic and terrestrial habitats must both be given equal consideration. Indeed there is no other choice, for failure means a regression from consensus, to contention, and thence into litigation.

Many difficulties exist in implementing a partnership ethic. The free market economy's growth-oriented ethic, which uses both natural and human resources inequitably to create profits, presents the greatest challenge. The power of the global capitalist system to remove resources, especially those in Third World countries, without regard to restoration, reuse, or recycling is a major roadblock to reorganizing relations between production and ecology. Even as capitalism continues to undercut the grounds of its own perpetuation by using renewable resources, such as fish, faster than the species or stock's own recruitment, so green capitalism attempts to Band-Aid the decline by submitting to some types of regulation and recycling. Ultimately new economic forms need to be found that are compatible with sustainability, intergenerational equity, and a partnership ethic.

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Notes

1. Originally published as: C.
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9. J. Locke, *Second treatise of g*
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A second source of resistance to a partnership ethic is the property rights movement, which in many ways is a backlash against both environmentalism and ecocentrism. The protection of private property is integral to the growth and profit-maximization approaches of capitalism and egocentrism and to their preservation by government institutions and laws. While individual, community, or common ownership of "appropriate" amounts of property is not inconsistent with a partnership ethic, determining what is sustainable and hence appropriate to the continuation of human and nonhuman nature is both challenging and important.

As a start, we might propose an ethic for the American Fisheries Society, inspired by that proposed for the Society of American Foresters: partnership with the land and the aquatic habitat is the cornerstone of the fisheries profession; compliance with its canons demonstrates respect for the land and waters and for our commitment to the wise management of ecosystems.

So, as we move into the twenty-first century, the idea of a partnership between human beings and the nonhuman community in which both are equal and share in mutual relationships is the ethic that I would propose. A partnership ethic will not always work, but it is a beginning, and with it there is hope.

Notes

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