



# Fish: An Issue for Everyone

A CONCEPT PAPER FOR

**Fish** *for* **All**

Produced by



2002

Reprinted with revisions  
August 2005

Fish is a key ingredient on the global menu, a vital factor in the global environmental balance and an important basis for livelihoods worldwide. So let us place it where it belongs: high on the global agenda and integrated into thinking, action and policies by all nations. **Join forces to make 'Fish for All' a global initiative.**

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# Introduction

**W**hen you think of ‘fish,’ perhaps you also think of rivers, reefs and restaurants...but do you think of war, HIV-AIDS, or climate change? Do you think of high infant mortality rates or the loss of traditional cultures? In one way or another, the subject of ‘fish’ has an impact on every person in every society, if only because we are global citizens surrounded by the fishes’ habitat: that most vital of all life giving substances—water.

In less than 50 years, the world’s average per capita consumption of fish has almost doubled, while those who catch, grow, process, trade and consume fish have changed almost beyond recognition. As overall demand for an adequate supply of fish continues to increase, we are forced to face the fact that this level of demand may not be met. Trying to meet it may cause long-term, irreversible damage to the environment and limit the future options of many people. The problems are multiplying, and the time has come for an informed, inclusive, public dialog.

Such a dialog should shape a vision for the future in which aquatic life has a positive impact on food security and nutrition, providing people with better livelihoods. To this end, it should establish sustainable environmental practices along the world’s rivers and coastlines, and in its lakes, seas and oceans.

The opportunity for such international dialog and action is presented by the Fish for All initiative. The dialog must take place on a global scale. It cannot be the work of one organization or one nation. Fish for All is, ultimately, an independent voice for the world. Communicating the specific realities of fish and fish supplies on our planet are matters of critical importance.

Therefore, the ultimate goal of Fish for All is to establish fish-related matters as a significant issue on world economic and environmental agendas. But, in order for this to occur, leaders must understand the realities and complexities of the subject of fish in the modern, global context. Those with influence must also recognize the need for positive developments, which must suggest the multiple and meaningful next steps that should be taken to ensure a positive impact on those people whose futures depend on fish.

## Current Realities and Complex Dilemmas

**T**he intricate complexity of our planet is its beauty and its curse. The problem of fish populations being decimated by unsound economic and environmental practices is part of a broad tapestry of contrasting but related issues: wealth seeking, poverty, health, trade, conflict and culture, as well as biodiversity loss, climate change and poorly coordinated pollution control. Sorting out these matters must involve many sectors of society. Dramatic steps must be taken to protect fish resources.

Fish are perhaps one of the most vulnerable of the world’s resources, because they are not perceived as being a high priority by leaders at all levels of society. Who takes full responsibility for the many fish-related issues? Other, more influential, voices advocate the building of a dam or coastal factory, or favor instituting certain employment policies which will, eventually, have a

direct impact upon fish supplies and so upon the health and livelihood of the people. Who will stand up and state the importance of fish to our world?

If you think fish is not a commodity that is important to you, your family, friends, community or country, consider the following facts.

## Fish and Poverty

In the world, 80 to 90 million more people have to be fed each year, most of them in developing countries. The most reliable source of protein for many is, and must continue to be, fish. Yet millions of people who depend on fish to live are, every day, faced by the fear of food shortages.

Among countries in the developing world, the people in the fishing sectors are some of the poorest and most neglected. Who fights for the right of fishers to have a decent livelihood?

While there is a growing appreciation that fish is a healthy source of protein, calcium, and vitamin A, and essential fatty acids as well as of other elements crucial to good nutrition (particularly in the case of pregnant women), fish are increasingly at the mercy of pollutants from the land and chemicals added to farmed aquatic resources. So, while fish is desperately needed to feed the world's poorest people, contaminated fish can be a dangerous source of food.

Employment in the primary capture fisheries and aquaculture production sectors seven years ago was estimated to have been about 30 million people while the number of people dependent on fisheries as an income has been estimated at over 200 million worldwide.

The significant role women play in fisheries is often overlooked as a part of this pattern. Already suffering from greater poverty than men in virtually every society, women are not recognized for the vital role they play, particularly in the post-harvest processing and marketing of fish. Women are frequently a major percentage of the labor force in these sectors, working under conditions of great inequality and, frequently, receiving little direct remuneration for their work. The problem of declining fish stocks is often compounded within families. Often fish provides a livelihood for the whole family; a lower catch means less to process and market, and so none is left over for the family to eat.

Fishing is by far the most dangerous of all occupations. A person is 10-15 times more likely to die while fishing than while mining. Worldwide, many families have lost their primary wage-earner to the sea. The percentage incidence of HIV-AIDS among fishing communities in some countries appears to be particularly high. This is made worse by the fact that people in marginal fishing communities are far less likely to have access to the health services and education schemes that might reduce the extent of this epidemic.

Urbanization is having a major impact on the structure of the demand for fish. Because many poor are now moving to the larger cities of the world, the supply of low-value fish has to increase to fulfill the needs of this rapidly expanding group. For them, low-value fish is the only affordable source of animal protein.

As incomes increase, wealthier people's tastes are moving from low-value herbivorous fish to high-value carnivorous fish. Thus more and more low-value fish will be diverted from poor people's plates into the stomachs of expensive carnivorous fish, which will in turn end up on the plates of wealthier people (both within and outside the country).

## **Fish and Biodiversity, Culture and Natural Capital**

Today, fishing is the largest extractive use of wildlife in the world. In 2000, worldwide production of fish, crustaceans and mollusks reached 129.3 million tonnes. More than 75% of that amount was used for direct human consumption. But demand is exceeding supply, and this is a growing problem: 74% of the 129.3 million tons extracted in 2000 came from fish stocks that are even now depleted, over-fished or fully exploited. In the future, many of these stressed fish stocks will not be able to even produce their current catch, let alone cater to the expected increase in demand.

World population is expected to increase from 6.5 billion (in 2005) to 8.5 billion within the next 25 years, and to 9.1 billion by 2050. Much of the growth will take place in the least-developed countries, where a high rate of mortality is outweighed by an even higher rate of fertility. Meat and fish production must double in the next 25 years to meet projected demand. Food imports will not provide a complete solution to food security problems. Increases in productivity are the only real option. Can we produce enough food to feed the increasing population? Can we do this in a sustainable way—without harming the environment?

Much that we need to know about fish and other aquatic life is still a mystery. Aquatic life is more diverse than terrestrial life. More categories of life live in water than on the land. Even in the case of fish, which is one of the larger forms of aquatic life, new species are still being discovered. Yet, even though our knowledge of aquatic life is still limited, some groups of fish, such as some types of freshwater fish, are among the most threatened on the planet. This is primarily a result of loss of natural habitat.

Many believe that protected areas are the best way to protect fish, by setting aside significant natural areas and shielding them, as far as possible, from human impacts upon both them and their environment. This has become a popular idea. However, some scientists and activists believe that protecting parts of the world's oceans, lakes and large rivers could simply lead to over-fishing elsewhere. What's more, the perspectives of various organizations and stakeholders that want to put this concept into practice conflict, particularly in terms of the philosophy, funding and management which should govern such protected areas.

Fish and aquatic life are a central feature of many of the world's cultures. Indigenous coastal cultures often have sacred species of fish they eat when seeking spiritual strength. Traditional cultures are struggling to survive and are increasingly threatened by more powerful interests who fish only for economic gain. The tragedy is that traditional societies from across the ethnic and religious spectrums will continue to vanish as the social meaning of fish is lost.

Different cultural views of fishing can lead to emotionally charged fishing issues. An example of this is whaling, which has become a lucrative source of income for both tribal and corporate fleets. Some see that populations of certain whale species are being devastated, and that this is morally wrong and causing irreparable environmental damage. Others consider whales to be the earth's biggest consumers of fish (per whale). They believe that reducing whale numbers may assist in the rejuvenation of fish stocks as well as improving fish biodiversity.

The world lacks a neutral forum in which to air such dilemmas over different values. Other secondary stakeholders (such as divers, tourists, tourist operators and recreational fishers) also need to be considered when developing fisheries' management policies.

## **Fish, Trade and Global Politics**

For many economically developing nations, fish are the first or second largest export commodity. Fish products generate foreign exchange and income, but at a price. These markets are often vulnerable to the market and trade demands of their customers from the developed world.

The development of export markets has affected how traditional fishers view their vocation. Where once certain species were fished for food and to generate adequate income, those same species are now exported, as they are considered “exotic” in American, European or Japanese restaurants or valued for purposes other than food (as is the case with pearl oysters). The transition from a subsistence to a market economy usually places pressure on natural resources: chronic over-fishing and other consequences confuse the balance that once existed between aquatic life and human beings.

Changing trade regimes, under the World Trade Organization (WTO) and the General Agreement on Tariffs and Trade (GATT), have implications for poor countries. The traditional trade barriers such as tariffs and quota restrictions are being reduced or eliminated whilst, at the same time, more and more technical standards like Sanitary and Phytosanitary (SPS) measures, Hazard Analysis and Critical Control Point (HACCP) standards and eco-labeling are being put in place. Among poor, fish-exporting countries, there is widespread apprehension that these technical standards may act as a barrier to trade.

Fishing rights are an ongoing source of conflict and war. Territoriality is a difficult issue, because water and its inhabitants cannot be contained in distinct parcels. Whole nations have been subject to military action and terrorism as a result of conflicts over who has the right to fish where.

Islands may be claimed by several countries in an effort to gain control of their natural fish supplies. For example, the territory of the Spratley Islands, in the South China Sea, is endowed both with fisheries and, possibly, oil reserves. As a result, the islands are currently claimed by as many as seven nations, in disputes which mix issues of geopolitical sovereignty, trade and military strategic interests. Even small, impoverished communities can experience debilitating strife in fights over fish, as village stands against village in a desperate effort to sustain its ability to make a living.

The complex issues surrounding fishing rights, and the implementation of treaties and regulations to define and to enforce them, will continue for the foreseeable future. Continued collaboration among communities, politicians, scientists, and activists will be necessary to keep this issue on the table. At more local levels, community leaders must be trained in how to encourage cooperative alliances among families, villages and regions and in how to defuse any conflict attendant upon the allocation of rights. As is the case with many pervasive, socio-economic issues facing our world today, lack of coordination in the efforts being made remains a major concern.

## **Fish for Economic Wellbeing**

At the most basic level, fish provide direct benefits (such as food) to people in developing countries. They provide a livelihood and income for millions of the world's poorest people, and also contribute to the overall economic wellbeing of many developing countries by means of export commodity trade, tourism and recreation.

The management of fish resources presents an ongoing challenge, but is vital in order to continue to improve economic wellbeing based on fish. “Co-management,” which links national- or state-level oversight with the delegation of a high degree of responsibility to local communities, is attractive in theory, but is difficult to implement and sustain. Local fishers, reliant on the good management of their resources, are often subject to more powerful forces in society. The good news is that many fishing communities, as well as non-governmental organizations (NGOs), are working to build local community networks and bolster their sense of empowerment, allowing them to challenge the elite. Having a sense of control over one’s destiny could prove co-management of fish resources to be a successful strategy.

A closely related “hot topic” is the concept of “integrated coastal resource management.” Questions continue to be raised as to whether this holistic approach to resource management actually benefits the fish resources in question. A comprehensive, integrated program needs strong commitment, both to get it going and to make sure that the program’s outcomes are genuinely positive. We must ask, will this be an effective solution or will it depend too heavily upon cooperation from all sectors of society (including industry) to be feasible in every situation?

Fish also contribute to the economies of developing countries through tourism and recreation. There are those who advocate replacing fishing as a source of livelihood, particularly in coastal areas, with non-extractive uses of the environment, such as eco-tourism. Questions remain: would such a step actually relieve the pressure being placed on fish and their habitats? Is the termination of a way of life that has existed since the dawn of humankind morally justifiable?

## **Fish, Water, Climate and Ecosystems**

Fish and other forms of aquatic life are highly dependent upon the environment in which they evolved; changes in an environment can devastate the aquatic life living there. Whether in freshwater or in the sea, fish are at the receiving end of all kinds of human activity.

The building of dams, the diversion of rivers, and the destruction of wetlands, as well as chemical pollution and littering, have all been found to have a profound impact on the fate of thousands of species of fish. Access to fresh water is the most critical of all natural resource issues. Yet the fate of fish is often overlooked in associated debates, as is the impact the devastation of aquatic populations has on the people who depend upon fish for their livelihoods.

The fate of fish is intimately related to world climate. Certainly El Niño affects ocean fisheries. Indeed, the phenomenon was named by people living on the coast of Peru, where it typically starts around Christmas and can devastate anchovy stocks. Large-scale climate and ocean phenomena (such as El Niño, the Pacific decadal oscillation and the tropical monsoons of Asia) go a long way towards explaining dramatic fluctuations which occur in the stock of many fish species and their food supplies, but we are only just beginning to actually understand the effect they have on fish. Much more needs to be done to advance our knowledge of the links which exist between fish and climate.

Rapid increases in human populations, changes in land use, and destructive fishing methods have degraded coastal habitats to a point where they can no longer support a rich variety of aquatic species. These are the most fragile, yet also the most vital, of the ecosystems that support marine life. To lose the benefits that coral reefs, mangroves and seagrasses provide is to irreparably damage the environmental balance that exists on all of the earth’s continents.

# Positive Developments and Next Steps

**B**ecause it serves as a primary food source, as well as a source of economic security, and because it is central to the biodiversity of ecosystems that cover the majority of the earth's surface, the subject of fish must be promoted to the level of a key policy issue to be addressed by the international community. It should not simply be seen as something which is merely the concern of specialist scientists.

There exists substantial data on food fish supply, projected needs for fish, and threats to sustainability in various regions of the world. Communicating that information, via those who help shape opinion, is what will really "bring home" the importance of effective fishing policies. Leaders can help the public understand that fish supply is not just an oceanic issue. Fish is a food source, economic commodity, and biological necessity relevant to both the developed and developing world.

Science can make a positive contribution to every socio-economic, resource or environmental issue involving fish. One central contribution today's scientists can make to the dialog on fish is to consider any relevant subject from an integrated, multi-dimensional perspective. The scientific research reflected in Fish for All is ultimately dedicated to the alleviation of human suffering. The initiative is designed to improve people's quality of life, while sustaining fish production and protecting the natural world in which we live.

How can world leaders translate the available information, which so tangibly indicates the relevance of fish to everyone, into a plan of action which is practical in their own regions or nations? There are several operational strategies that can make Fish for All a real tool for such change.

With regard to fish and poverty alleviation, we must ask ourselves what can be done to better utilize fish resources, and therefore alleviate poverty and improve the lives of disadvantaged populations in the developing world?

Aquaculture is the most frequently cited solution to many fish supply problems, whether these be stock shortages or diminished seasonal economic stability for fishers. Aquaculture can offer a solution to over-fishing, but it can have environmental problems if the wrong kinds of aquaculture are practiced or if it is practiced negligently.

For example, aquaculture can pollute the surrounding waterways or lead to the wholesale transformation of a landscape used for pond or cage construction. And, as with any form of farming, aquaculture is not immune to the effects of climate variability. During the 1997-98 El Niño, the warmer climate devastated many shallow-water aquaculture crops.

Aquaculture is also cited as a potential source of biological risk, as genetically improved aquatic strains now in the laboratory may replace wild stocks of the species if and when they are released into open waters. Introducing any exotic species into an environment, accidentally or deliberately, can also threaten native fish and habitats. Whilst they promise great leaps in production, the use of genetically modified or transgenic fish must be handled with extreme care, as it is difficult to assess their safety, let alone control them.

Many advocate stock enhancement efforts (the release of hatchery-reared, juvenile fish) to increase the availability of fish as a food. Some successes have been achieved with shellfish. However, this may not be a universal panacea as, in the case of some species, this potential good is outweighed by the significant upsets that may be caused to natural ecosystems.

The management of wild stocks of fish is critical, not only to ensure but also to increase the quantity of fish available for food. To address this, policies must be developed with the involvement and direction of relevant communities and across all the sectors that have an impact upon the environment.

## Sustainability of Fish Resources

The world is experiencing a rising tide of awareness about the sustainability of fisheries, an awareness which is obvious amongst leading NGOs, international foundations, the academic community and representatives affiliated to the United Nations, as well as amongst other respected alliances. The World Summit on Sustainable Development (Johannesburg, 2002) made a commitment to restore, where possible, fish stocks to maximum sustainable levels by 2015.

The importance of fish, in that they feed a large percentage of the world's population and provide economic security for entire societies, is increasingly well understood. Many regional and national entities are poised to implement policies to assure the future of their citizens by addressing the issue of fish. Their leaders will be supported by the unified voice of the respected and recognized individuals affiliated with the Fish for All Summit.

New, locally-based experiments intended to improve fisheries resource management are yielding results at a local level. Can these be scaled up? Will certification of fish products from sustainably managed fisheries be the savior of some fisheries? Laws and regulations are needed which consider the needs of all stakeholders, especially the poor who rely on fish for their livelihoods.

Science has made great advances with regard to the farming of fish. Now, communities throughout the world could be educated in aquaculture and effective re-stocking of high value, tropical marine species, so that fishing practices and the output of fisheries can continue to grow.

At the heart of the sustainability efforts being made lies the need to improve the governance of natural fisheries resources. In addition to over-fishing and destructive fishing, many of the factors which have an impact upon the sustainability of coastal and inland aquatic resources are driven by actions outside the fisheries and aquaculture sectors (for example, competing uses of the environment, climate and pollution). Therefore, many problems associated with fisheries resources cannot be resolved within the fisheries sector alone.

Women are much more active in fish farming than in fishing, and should be seen as valuable contributors to aquaculture production. Even with regard to fishing, women are valuable partners in community strategies, which aim to encourage positive fishing opportunities and provide better education, in order to promote healthy lifestyles and economically viable occupations.

Can more of the world's current fish catch be made available for human consumption? At present, about 23% is used to make fish-meal and oil. Increasing usage of fish products directly

as food, combined with a more effective management of fisheries, could increase output by at least 10%. Here the issue of continuing population growth is the challenge: can effective resource management keep up?

## Cooperative Action by Developing Nations

While Fish for All has a global mission, the initiative presents an occasion on which developing nations can come together and work in concert to address specific problems related to fish. In the present scenario, these countries have the most to lose; under Fish for All, they also have the most to gain.

By working together to create international initiatives, communities across borders can be educated about the fact that the destruction of aquatic habitats will have a profound long-term impact. Policy implementation, combined with resource management and local education, can help to restore ecosystems (ensuring that they are healthy and productive) and damaged habitats, as well as helping to establish sustainable fishing practices.

Change brings fear, and resisting change is a reality of the human condition. However, in the developing world, where the food supply of over one billion people is severely threatened, such resistance must be overcome. Utilizing scientific information, leaders must be shown that research into aquatic life genetics, increased policing of fishing fleets, and curbs on activities that damage fragile ecosystems will, in the long run, be good for their communities and their societies.

## Advancing Science and Economic Education

Leaders can work to assure continued funding for the advancement of scientific efforts to improve fish supplies. Through its structure and its vision, the WorldFish Center embraces collaboration. It represents an example of how scientific research can involve multiple partners (subsistence farmers, businesses, governments, NGOs and other researchers) in the testing of new ideas concerned with producing more fish in a sustainable manner and with conserving ecosystems. On another front, the expanding field of bioengineering will continue to offer opportunities by which science can safely and directly reduce famine and poverty, as well as responsibly increase environmental protection.

Ongoing efforts to overcome the obstacles which impede the potential success of co-management and integrated coastal resource management must continue, in order to develop and prove these promising pathways to sustainability. The challenges facing these strategies are significant, but there exists in these ideas an opportunity for scientists, NGOs and policy makers to work together to effectively change how fisheries are managed. The results could indeed increase food security, economic stability and improve environmental protection.

From the subsistence fisher on an isolated Pacific island, to entire societies in sub-Saharan Africa and leaders of influential organizations and governments, the vast majority of people upon whom the depletion of fish resources has an impact are not educated in this matter. They don't know why this is happening or what they can do about it. Comprehensive, culturally-sensitive education, disseminated as widely as possible, must be made a priority. With understanding, such individuals will be far more likely to change their activities in order to ensure that food, employment and environmental protection will be available for their children and grandchildren.

## Other Good News

Mindsets are changing. There is growing international recognition of the fact that fisheries rights and well-coordinated management practices are important. As noted previously, conflicts over fishing rights continue to grow, not only among multi-national corporate fishing fleets but also among small, traditional communities where fish have become scarce and families feel they must fight to make a living. Collaboration among parties in conflict is the solution to this matter. Examples of successful mediation training exist, and could be expanded.

Environmental degradation has inspired scientists to explore ever more creative ways to reverse the impact human actions have. Promoting local strains of fish and other aquatic animals that are resistant to disease, and which are more prolific in their growth and reproductive abilities, is important to sustaining fragile lakes, seas, reefs, ponds and rivers throughout the world.

## Steps Along the Way

**T**he first global Fish for All event took place in November 2002 in Penang, Malaysia. Nearly 300 participants from over 40 countries, including fisheries specialists, development assistance experts, fishers organizations, civil society representatives, and several government fisheries ministers from Asia and Africa attended the one day Summit. It was the critical first step in advancing international cooperation to assure fish supply and thereby ensure food security, alleviate poverty and promote environmental protection.

The second Fish for All meeting was held in Kolkata, West Bengal, India in December 2003. The outcome of this national launch was an action plan and a series of recommendations directed to meet the increasing demand for fish for food and non-food uses in the country. The 10th Five Year Plan for India envisages increasing fish production from 6.2 million tonnes in 2002-2003 to 8.2 million tonnes by the end of the Plan period (2006-2007). This can be achieved by focusing efforts on sustaining gains already made in production; protecting the productivity of inland and marine fisheries; increasing production through expansion of area and new technical breakthroughs; adding extra value to the produce and ensuring its quality; and creating new marketing opportunities.

A Fish for All Summit meeting is taking place in Abuja, Nigeria in August 2005 under the auspices of the New Partnership for African Development (NEPAD). In recognition of the great importance of the fishery sector to food security and poverty reduction in the region, NEPAD is developing an Action Plan for Fisheries and Aquaculture. The overall objective is to increase and safeguard the contributions of fisheries and aquaculture to meeting Africa's development objectives as laid out in national plans, regional agreements and the continent's commitment to the Millennium Development Goals. To develop this Action Plan and receive guidance from key stakeholders in the region, a series of regional consultative workshops were held in Malawi, Senegal and Egypt to discuss important issues in the areas of inland fisheries, marine and coastal fisheries, and aquaculture. Each workshop aimed to identify priority areas of investments in the sub-sectors and propose mechanisms for strengthening engagement with NEPAD and its constituencies in support of these priorities.

**Fish for All** is a global initiative that will create an informed inclusive public dialogue, shape a vision of the future of aquatic life, and contribute to food security and improved livelihoods for the poor in developing countries.



[www.fishforall.org](http://www.fishforall.org)