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Fish—more than just another commodity



Four key principles towards a new dialogue in fisheries management

This brief highlights the contribution of wild capture fisheries to nutritional security in fish dependent developing countries. It is intended to stimulate debate around two broad themes: (1) when should the focus of fisheries policies be on local food security and human well-being as opposed to revenue generation, and (2) how does the current research agenda, with its emphasis on environmental and economic issues, assist or impair decision making processes.

Key Messages

- The countries in the world that are most dependent on fish to meet the nutritional requirements of their populations depend on wild capture fisheries for their supplies. Most of these countries are in the developing world.
- Aquaculture may be the fastest growing agricultural sector, but in countries with fish dependent populations the level of domestic aquaculture is too small to compensate for any falls in wild capture fisheries production.
- Fishing itself is the major anthropogenic driver of change for marine fish stocks; this is in contrast to inland fisheries where land-use changes, dam construction and pollution have greater effects on the quality and quantity of harvestable resources.
- Improving the governance and management of fisheries exploitation is the principal means of securing the contribution of fisheries to food security.
- To distribute the benefits of fishing more equitably, the responsibility for management and decision making should be devolved to the level where the incentives for fisheries to meet the widest community objectives are highest.
- For fisheries reform and policy implementation to be successful, primacy should be given to honest inclusive stakeholder dialogue.
- The policy dialogue, which is usually driven by data on environmental issues and fisheries resources, must be complemented with research data on the patterns and dynamics of fish trade, value chains and end user consumption.
- As fisheries do not exist in isolation, multi-sectoral perspectives and approaches need to be developed and supported.

Why wild capture fisheries are important and what can be done to better govern them

This brief explains why wild capture fisheries, those supplied naturally by our seas, rivers and lakes, are especially important for food security in developing countries. It then reviews the current status of fisheries and the sustainability of current wild fish supplies, before considering the shortcomings in our understanding of the roles that fish play once the catch is landed and why policy measures need to take a more holistic view of fish and fisheries. Finally, given the inherent complexity of the sector in terms of species diversity, environments, fisher populations and management regimes, the brief offers some broad-based recommendations for the realignment of fisheries policies to include inputs from both resource conservation and national food security perspectives.

Fish supply in nutrition insecure developing countries

The phenomenal rise in aquaculture production has been championed as a new 'blue revolution', and a solution to the stagnant or declining fish yields from wild capture fisheries. Although this is the fastest growing food production sector, and farmed fish production may soon exceed the catch from the wild, it is not a panacea for all problems, nor a replacement for current fisheries. In particular, for those countries that are most dependent on fish for food security, the available data and research show that wild capture fisheries remain the dominant source of supply.

This view has been corroborated by a recent paper "**Innovations in capture fisheries: an imperative for food and nutrition security in the developing world**"¹. In this paper, the relationship between country wealth, animal protein consumption and the percentage of animal protein provided by fish was assessed to understand the contribution of wild capture fisheries to people who are food and nutrition insecure. Animal protein was also treated as a proxy for the micronutrient contribution of animal source foods. Results demonstrate that, overall, animal protein consumption increases with country wealth. However, in only a few of the wealthier countries does fish account for a high proportion of the daily protein intake. This is in stark contrast to many of the poorer countries where, for some, there is a high dependence on fish for the animal protein in the diet. For these populations fish is the least expensive and most readily available source of animal protein.

¹ Hall et al. (2013)

An analysis of the fish trade in countries where the per capita GDP is less than \$2000 and the dependence on fish for animal protein supply is greater than 20% clearly shows that for both net importing and net exporting countries the source of the fish consumed is still, by a wide margin, from the wild rather than from aquaculture.

Another recent study supports the primacy of wild capture for providing fish to the food insecure². It concludes that inadequate reporting in official statistics of the small-scale fishing sector in developing countries probably leads to under-estimates of global marine catches by about 10 % and freshwater catches by about 80 %. The revised total estimates for capture fisheries production from developing countries were between 70 and 75 million tonnes (mt) for 2006, compared to about 65 mt from official statistics. Of the revised figure, between 40 and 46 mt was estimated to be for direct human consumption. Importantly, this study also estimated that 94% of the small-scale fisheries catch is consumed within the country of origin.

These research findings illustrate the importance of sustaining wild capture fisheries to ensure continuing supplies of fish for poor consumers. In many settings these fish represent the principal animal source food for the population, supplying both high quality protein and essential micro-nutrients for maintaining health and well-being. A growing number of studies now demonstrate how important these fish are for maintaining adequate levels of essential fatty acids, vitamins and minerals in vulnerable populations.

Although aquaculture continues to grow, there is no immediate prospect that it can replace capture fisheries as it is currently a relatively small contributor to total supply in these highly fish dependent countries. This is particularly true for most of the African and Small Island Developing states. Although recent aquaculture growth rates for some of these countries are among the fastest in the world, the low starting base makes it unlikely they will make a major contribution to national fish supplies in the next 10 to 15 years, even under ideal conditions. Thus, although aquaculture will grow, there is no immediate prospect that it will replace any losses of local wild fish. Therefore, wild capture fisheries will remain critically important to food security in many developing countries.

However, just how sustainable is wild fish production for these countries, and what is the potential for reforms to fisheries policies to secure sustainability where needed and better take into account the full range of social, economic and environmental issues that surround wild capture fisheries?

The current status of wild capture fisheries

FAO³ provides the most authoritative assessments of the status and trends of world fisheries. Their most recent estimate states that 30% of stocks were over-exploited, depleted or recovering in 2009. Several other published estimates reach a broadly similar conclusion, albeit with differing methods, definitions, and geographic coverage. While the FAO study also suggests a moderately increasing trend in the proportion of over-exploited stocks over the past 20 years, other authors can be found who will argue that this trend is clearly understated or, conversely, nonexistent. Unresolved differences of opinion notwithstanding, it is clear that the current status of global fish stocks does give cause for concern. This is particularly true for South, East and Southeast Asia where sufficient data to assess stock status have either not been collected or have yet to be adequately analyzed.

Knowledge of the status of inland fisheries is weak compared to that of marine systems. Official statistics indicate that catches in inland waters have been rising steadily at about 3 % per year. These increases have occurred mainly in Asia and Africa. In the absence of formal stock assessments, one indicator of heavy fishing pressure is the decline in the mean size and age of the catch—a line of evidence that suggests fishing in many tropical systems is having considerable impact. In some cases the major part of the catch consists of fish in the first year of life and the consensus appears to be that, with the exception of South America, most tropical inland fisheries are heavily fished to a point that substantially alters the fish communities in terms of species diversity, abundance and ecology. In view of their considerable contribution to food security, this shortage of data on status and trends indicates that inland fisheries remain an area significantly under-researched.

Drivers of Change

For marine fisheries it is fishing itself that, at a global scale, is the principal anthropogenic driver of change in fish stock status. There are, of course, others. Changes in freshwater flow, nutrient enrichment from run-off and coastal habitat destruction all play their part in determining the harvestable level of resources. The fact remains, however, that fishing itself is the main determinant of stock status for marine fisheries, under most circumstances. Hence, improving the policies, governance and management of their exploitation will be key to securing sustainable supplies on which to build food and nutrition security.

In contrast to marine fisheries, it is external environmental pressures that normally represent the greatest threat for inland systems. This is especially true for river fisheries, which contribute more than half of the total inland fishery catch. Dam construction, land-use changes, water abstraction, pollution, urbanization and several other external drivers pose significant threats to major river fisheries throughout the world, suggesting the need for alternative kinds of research to inform decision making.

Although the precise status of both marine and inland fisheries remains uncertain, there is little doubt that current global production is at, or close to, the limits that natural systems can provide. Certainly there are examples where improved management could raise yields to some extent, and many more cases where opportunities exist to prevent spoilage and waste of the catch that has been landed, but overall any such increases in supply would likely be outstripped by increasing global demand. Yet, while there may be relatively limited prospects for increasing wild fish catches, ensuring the long-term sustainability of *current* catches remains vital in light of the critical role they play in food security.

It's not just about the catch

Concern about over-fishing and the effects of fishing on ecosystems dominate public discussion of fisheries. In the research community too, the focus historically has been on stock status and dynamics on one side and conservation science and wildlife preservation on the other. Fisheries policies have therefore been driven by a primary focus on technical issues to safeguard stocks and ecosystems—net sizes, closure periods, marine protected areas, and catch allowances. In contrast, relatively little attention has been placed on the essential role of fisheries in our food supply system and the

² Mills et al. (2011)

³ FAO (2012)

contribution they make to nutrition security and human welfare and how this might be enhanced. Valid as the current research focus is, after all if there are no fish left there will be no fishing, the research agenda needs to be broadened to include these additional food security and welfare dimensions. This is especially true, given the well-documented complexity of the links between food production, availability, entitlement and access.

At what point should the primary function of small-scale fisheries be to provide healthy, nutritious and affordable food to those most in need, and what incentives could be put in place to fulfill those objectives other than free market economics?

Fishing is frequently part of a highly diversified livelihood strategy—a reality that may often be ignored in policy development. Of the approximately 45 million people engaged in fishing many are part time rather than full time fishers, and a further 6 million are estimated as only occasional fishers or farmers. What policies need to be engaged for this group so that small scale fisheries can provide a source of livelihood to the landless rural poor, and a ‘safety net’ income source for those experiencing temporary or seasonal hunger, or unemployment?

Policy makers need to ask more explicitly how fisheries might be better used to improve food security and reduce poverty, and what the wider implications might be of strategies aimed only at increasing sustainable yield or raising economic returns.

Achieving recognition of the issues is a first and important step, but creating coherent policies that address them and then implementing those policies is both demanding and complex. This is, to no small extent, due to the wide variety of ecological environments, fish stocks, fishing methods, and the characteristics and requirements of the fishers themselves. Policies formulated for an open ocean trawling fleet whose catch is primarily destined for an export market need to differ substantially from those prepared to best manage the catch from an inshore canoe fishery serving local consumers and a regional trade in dried fish. Again, a different set of policies and management will be needed for a lake fishery exploited by part time fishers, many of whom migrate to the lake seasonally as part of a diversified livelihood strategy. The key concept to be drawn from this is: Small-scale fisheries are extremely context specific, and a one-size-fits-all set of fishery policies will generally be inappropriate; hence policies and management plans need show sensitivity to the details that differ from one fishery to another.

Understanding our past

To guide the future of fisheries, it is helpful to consider their past. Why have fisheries policies often been framed primarily by environmental and economic data? Partly this is due to the assumed authority of the more powerful actors in the debate, foreign governments, conservation organizations, the scientific establishment, development bodies, and finance institutions. The actors without a voice at the table have been the millions of small-scale fishers, less educated, less organized, and with little economic or political influence.

Four key principles towards a new dialogue in fisheries management

To help navigate the challenges of future fisheries reform and promote a broader and more inclusive set of policies based both on environmental and sociological criteria, four guiding principles should be followed. These may be adopted by development agencies and other stakeholders in their partnerships with governments that need fisheries to support their food security objectives.

1 Appropriate level for decentralization

The first principle considers the degree of decentralization of management and decision making that would be optimal—from central government to regional, community or local level. These key activities should be carried out at the level where the incentives for fisheries to meet the broadest set of shared community objectives are highest. In some states this could reasonably remain at the central government level, while in many developing countries decentralization to regional or local government or even to community level will often deliver the most favorable results. It is important that within this devolution of responsibilities the wider context of political accountability is kept in mind; even local level or traditional authority elites are not immune from bias and self interest. Also, for devolution of management responsibilities to be successful, the stakeholders must possess the necessary knowledge and skills, and be granted the authorization to carry out management tasks. Without the necessary empowerment, prospects for successful long term reforms are weak. Formal analysis of incentive structures and institutional relationships will therefore be of great value in helping to decide on the appropriate level for decentralization, rather than the narrow adoption of any particular “off-the-shelf” community management model.

2 Primacy of stakeholder dialogue

The second principle is to give primacy to fully inclusive stakeholder dialogue over both the direction of future fisheries policy changes and how implementation will occur. ‘Dialogue’ is used to mean a genuine open two-way conversation and exchange of views designed to solve problems through collaboration, rather than a “consultation” used to legitimize a pre-selected technical solution. Failure to respect the needs and concerns of stakeholders significantly reduces the probability of a successful outcome. This open and trustworthy dialogue is especially important when considering food security. When the stark realities of life as a small-scale fisher are taken fully into account—the need for fish to feed families, the need for open access fisheries to cope with periods of economic hardship or crop failure—the context within which policy decisions are made is changed. Those whose livelihoods are most affected need to have a voice in the fishery reform process.

3 Take the whole value chain into account

The third principle is to complement the data from current environmental and stock-based fisheries research with data that explains what happens to the fish after it has been landed. This includes data on processing, marketing, the value chain, and the behavior of the consumer when offered variations in product quality and price. This information will provide insight into how access and entitlement can be promoted to improve the health and well-being of vulnerable groups such as young children or nursing mothers.

4 Incorporate fisheries in a multi-sectoral perspective

Fisheries do not exist in isolation. Decisions taken in other areas of government or business have the potential to affect both fisheries resource sustainability and the well-being of the people who depend on them, both positively or negatively. Developments

in infrastructure, new roads linking fish landing sites to markets, social safety nets, insurance schemes, access to banking and credit, issues of public health and labor market reforms can all have important impacts. This demands that fisheries policy reform is incorporated into the broader spectrum of rural development policy and that fisheries are viewed from a multi-sectoral perspective. Linking fisheries considerations into wider issues such as climate change, migration or human rights, for example, might offer a more effective context for solving some of the traditional fisheries management issues—access rights, effort control or vessel decommissioning, for instance. Rather than diverting effort away from solving mainstream fisheries problems, this may actually represent an effective route to solutions. Critical to this is bringing fisheries governance and economic development considerations together, for example through representation in Poverty Reduction Strategy Papers.

Key concepts

Wild capture fisheries remain the dominant source of supply for countries most dependent on fish for food security. In the short to medium term there is no prospect that increased aquaculture production can compensate for any reduction in fisheries in these countries. But ensuring the fisheries supply is not enough on its own. Interdependent with resource sustainability issues are those concerned with food security and human well-being. The goals of fisheries reform and the context of the policy debate must also focus on the needs and desires of the fishery stakeholders at the local level. While linking the two through these four key principles undoubtedly increases the complexity for both researchers and policy makers, embracing this higher level of sophistication is essential if durable solutions for fisheries are to be found.

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