

# Development of international guidelines on the use of wild fish for aquaculture production

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The project “*Towards sustainable aquaculture: selected issues and guidelines*” implemented by FAO and funded by the Government of Japan, through a Trust Fund arrangement, aims at addressing selected key issues of sustainability in present global aquaculture practices and development. In recognition of the recommendations of FAO’s Committee on Fisheries/Sub-Committee on Aquaculture (COFI/SCA) during its first two sessions, a thematic area on the ‘*use of wild fish and fishery resources for aquaculture production*’ had been identified as a priority for targeted action.

A project to develop international guidelines on the use of wild fish for aquaculture production is being implemented. The project is aimed at collating and synthesizing available information on the above thematic area as basis for generating potential management regimes and other options (both generic and specific contexts) for feasible and affordable targeted response measures pertaining to the specific issue of concern. The outputs to be generated by this project will assist FAO Member Countries in the promotion and implementation of the provisions of the Code of Conduct for Responsible Fisheries (CCRF).

Aquaculture, as a diverse sector, uses many strategies to increase production. One such strategy is the harvesting of wild individuals, either as broodstock whose eggs will hatch and develop under culture in ponds or cages, or as early life-history stages for on-growing under confined and controlled conditions. This system of aquaculture production may be termed *capture-based aquaculture* and is practiced worldwide on a variety of marine and freshwater species<sup>1</sup>.

Capture-based aquaculture has certain advantages and disadvantages compared to aquaculture that controls the full breeding cycle of farmed species. The primary advantage is that the system does not rely on controlling the reproduction and breeding of farmed species.

Thus, species with high market value or that are readily available naturally can be farmed without the necessity to develop hatcheries or breeding programmes. However, the lack of domestication potential for wild-caught species has also its disadvantages including the fact that there will be no genetic improvement possible, even in the long-term.

Capture-based aquaculture is practiced on high value marine finfish species such as tuna that require high protein diets and sturdy culture facilities. However, it is also used on low-value fish species that may be farmed in small ponds or inexpensive farming systems with minimal inputs. The former provides economic opportunity, but requires substantial infrastructure and investment, whereas the latter provides food security and modest additional income to rural communities. However, both need to be evaluated in terms of economic viability, wise use of resources and environmental impact.

The scale of such practices is difficult to quantify, but it is estimated that about 20 percent of marine aquaculture production comes from capture-based aquaculture with a value of US\$1.7 billion. The culture of many freshwater species also relies partly or fully on fry caught from the wild because the supply from hatcheries is not adequate to meet the demand, or because the quality of hatchery produced seed is perceived as inferior to wild caught by the farmers. The main concern related to such farming practices is whether they have negative impacts on wild stocks of the targeted species as well as on non-targeted species. Although there is generally little data in support of these claims, some countries have tried to ban or somewhat restrict these fisheries.

As in all aquaculture, there are environmental concerns that need to be addressed with harvesting wild resources. In most fishery management laws, there are minimum sizes on harvested species and often restrictions on the

harvest of spawning adults. However, early life history stages and adults ready to spawn are the target individuals in wild-caught farming. The impact on natural populations that are "targeted" for this type of aquaculture needs to be addressed to determine the sustainability of the practice.

The longer-term development objective of this project component is to contribute to improved and effective fish farming and conservation of natural aquatic populations at the global level, with minimum disruption to responsible fisheries and livelihoods through successful implementation of ecosystem approaches in fisheries. The project will result in an assessment and a review of the use of wild fish/fishery resources for aquaculture production as well as consider the socio-economic and environmental impacts of this practice. It will therefore serve to guide policy-makers in potentially developing policies and practices that take into account both the use and conservation of aquatic resources.

Through the project, a number of review papers have been commissioned which include both marine and freshwater examples and cover ecological, socio-economic and livelihood impacts. The list of commercial species and related geographical coverage under review are the following: Atlantic and southern bluefin tunas (Mediterranean/Australia); European eel (Europe); mud crab (Southeast Asia); groupers (Southeast Asia); yellowtail (Japan); cod (North Sea); oysters (Korea Rep.); snakehead and pangasiid catfish (Mekong region); carps (Gange Delta); *Clarias* catfish (Africa/Cameroon); and mullets (Egypt). Two main thematic reviews have also been commissioned: (1) environment and biodiversity issues and (2) socio-economic issues related to the exploitation/use of wild fish/fishery resources for aquaculture.

A technical workshop will be organized in Viet Nam in October 2007 to synthesize and review the materials produced and to lay the foundation for the production of a set of technical guidelines on the responsible use of wild fish and fisheries resources for aquaculture production. The workshop proceedings will be published together with the review papers along with the guidelines when finalized.

More information about the project may be obtained by e-mail from Mr Alessandro Lovatelli, Lead Technical Officer of the project.



NACA, BANGKOK

*Farmed grouper sold in a Thai market*



SUZUKI, JAPAN

*Farmed bluefin tunas on sale in the Tokyo Fish wholesale market*

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Note: In 2004, FAO published a technical review document entitled "Capture-based aquaculture: The fattening of eels, groupers, tunas and yellowtails" authored by Ottolenghi, F., Silvestri, C., Giordano, P., Lovatelli, A. and M.B. New. (see FAN issue July 2004, No. 31 - page 43).