

editorial



Genetic diversity is a basic requirement in any program for the improvement of aquatic species. Terrestrial animal and crop farmers raise species and breeds that have been bred in captivity for thousands of years. Many of the breeds/strains presently being farmed are quite distinct from their wild relatives and have a much better growth performance. As compared to this, there is very little domestication in the case of aquatic animals, in spite of aquaculture having been practiced for thousands of years. Many of the aquatic species that are being cultured today do not grow as well as their wild populations due to inbreeding. This makes it necessary to go back to nature frequently to obtain wild brood stock or seed. Hence, aquaculture is dependent on natural genetic resources. A classical example is the Nile tilapia which has been introduced to aquaculture in many countries outside its natural habitat. The Genetic Improvement of Farmed Tilapia (GIFT) project implemented by the WorldFish Center and partners, realizing that the stocks of Nile tilapia in Asia were inbred, and therefore collected and used wild germplasm from Africa in the genetic improvement program that resulted in increasing the growth rate of the fish by 85 per cent after five generations of selection.

The last decade has seen some attention being paid to conservation and sustainable development of genetic resources with the establishment of the Convention on Biological Diversity (CBD), the FAO Code of Conduct for Responsible Fisheries, and the inclusion of aquatic genetic resources in the FAO Commission on Genetic Resources for Food and Agriculture. In spite of the importance of aquatic resources, they do not find a place in some of the Conventions. The Bellagio conference on "Towards Policies for Conservation and Sustainable Management of Aquatic Resources" held in 1998 recognized that the CBD remains relatively undefined with respect to aquatic resources and suggested that national governments should take responsibility for the conservation and sustainable use of aquatic genetic resources. Many countries do not have policies for the conservation of aquatic genetic resources and those that do have no means of implementing these policies.

Transboundary movement of aquatic organisms has also become a concern from the point of view of conservation of biodiversity and introduction of pathogens and parasites. A number of introduced species have become invasive and led to the extinction of indigenous fauna. Even in cases where genetically improved strains have escaped into the wild and come in contact with natural populations of the same species or that of a closely related species, there is the possibility of hybridization and gene introgression and subsequent erosion of biodiversity. The expert Consultation organized by the WorldFish Center in Bangladesh in 2003 suggested ecological risk assessment be made at the national level before improved strains are disseminated. An expert Consultation organized by the WorldFish Center in collaboration with FAO, IUCN, CBD, CTA and UNEP in 2002 in Nairobi recommended that improved tilapia strains from Asia should not be introduced into Africa which is the natural home of the tilapias. In this context, the International Network on Genetics in Aquaculture (INGA) coordinated by the WorldFish Center is assisting its members in germplasm transfer for research following strictly the Material Transfer Agreements and quarantine protocols and recommendations such as those of the INGA workshop.

The giant freshwater prawn (*Macrobrachium rosenbergii*) has become an important aquaculture species in Asia, both for domestic consumption and for export. There is growing interest in genetic improvement of the species and a number of countries in Asia are in the process of initiating research programs for genetic improvement. The paper on genetic diversity of stocks of *M. rosenbergii* by Peter Mather and Mark de Bruyn in this issue brings to attention the low genetic diversity of cultured stocks, while wild stocks are genetically diverse, indicating the importance of understanding and conserving genetic diversity of the species.

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WorldFish Center

Our commitment:

WorldFish Center is committed to contributing to food security and poverty eradication in developing countries.

We aim for:

- poverty eradication;
- a healthier, better nourished human family;
- reduced pressure on fragile natural resources; and
- people-centered policies for sustainable development.

A way to achieve this:

Through research, partnership, capacity building and policy support, we promote sustainable development and use of living aquatic resources based on environmentally sound management. The research thrusts are:

- improving productivity;
- protecting the environment;
- saving biodiversity;
- improving policies; and
- strengthening national programs.

We believe this work will be most successful when undertaken in partnership with national governments and nongovernmental institutions, and with the participation of users of the research results.

Our corporate makeup:

WorldFish Center is an autonomous, nongovernment, nonprofit organization, established as an international center in 1977. The Center is an operational entity with programs funded by grants from private foundations and governments.

WorldFish Center is governed by an International Board of Trustees and its policies are implemented by the Director General.



WorldFish Center is one of the 15 international research centers of the Consultative Group on International Agricultural Research (CGIAR) that has initiated the public awareness campaign, Future Harvest.