

# Consultation on Invasive Alien Fish Species: Need for a Risk Benefit Assessment and a Management framework for healthy freshwater systems

19 December, 2018, New Delhi, India

Jointly organized by ICAR-National Bureau of Fish Genetic Resources & World Wildlife Fund

## Background

Trans-boundary movement of genetic resources is an age old practice, which has intensified during last few decades with the rise in global trade. In contrast to the spread of plants and other animals of interest to man, introductions of fish species have occurred very recently. Some introductions may be classified as ancient or historical, but the major spread of exotic fish species around the world essentially dates from the middle of the 19th century. Close to 40% introductions are for Aquaculture purpose. Many introductions happened by traders through porous borders or without any prior risk assessment without knowledge that what a country is receiving and loosing preparedness towards risks, which could be ecological, disease to alien pathogens or disease risk to introduced germplasm from new emerging diseases or any other unforeseen. There has been examples of negative impact such as Nile perch in Lake Victoria, genetic introgression in wild *Clarias macrocephalus* from farm escaped hybrid (*C. gariepinus* cross) catfish Horizontal expansion of Golden Apple Snail in Mekong region, Common carp and Mozambique tilapia in river Yamuna and other places. *Clarias gariepinus* in India, despite ban on culture is becoming a concern. In aquaculture, risk of invasiveness evoke serious notes, as the fish moves, escape from culture to wild environment and if established, it becomes difficult to eradicate and lead to unprecedented risk to ecosystem services and subsequently biodiversity. But every alien species cannot be termed invasive. Exotic (Alien) species are the ones introduced out of their native distribution, however, invasive species are alien species, established in significant breeding population, occupy large distribution, affect directly or indirectly the environment and native species. In most of the examples of invasiveness, the organisms expanded beyond their purpose and range of introduction and could find suitable environment to establish. It could be ornamental fish reaching rivers, example sucker mouth catfish or others meant of only aquaculture and consumption, escaping to the wild or introduced without procedures, arrived without risk assessment and establishing guidelines of culture. Introduction of exotic fish species could lead to irreversible changes in the aquatic ecosystems, ecosystem services and result in extinction of species. Such risks are significant for the biodiversity rich and diverse countries like south and South East Asia.

A key aspect to minimize risk of species becoming invasive is to establish regulated introduction mechanisms and adhering to the purpose and best practices of their propagation. The shared water bodies between the countries also pose concern, in the absence of harmonized procedures between the countries. Code of conduct for responsible fisheries article 9.2 calls for cooperation between the countries sharing water resources in

transboundary movements of aquatic animals. The Code of Practice for Trans-boundary Movement of Aquatic Organisms in the Lower Mekong Basin countries prepared by NACA is one such step in the direction of harmonizing procedures between the respective nations.

The germplasms exchange for propagation plants and livestock in non-native countries has been a common practice and has established procedures of characterization, evaluation and quarantine. Such exchanges with positive impact on trade and food production will increase, for aquaculture also especially form improved varieties. As per Commission of Genetic resources for Food and Agriculture, the use and exchange of aquatic genetic resources have been crucial elements in helping aquaculture become the fastest growing food producing sector over the past three to four decades. Countries can enhance aquaculture diversification, production, food availability and income of masses with judicious investment on time, scientific efforts through sharing of resources. During recent times, White leg shrimp has been a lesson, that improved breeds with proven tradability will find more introductions. Since 2004, this shrimp is produced from alien sources over 400% to native production. Introduced regions (29) contributed 85% to the global production.

The transfer of alien germplasms is also not discouraged through Convention on Biological diversity (CBD) and Biological Diversity (BDA) Act 2002 (India), however, aquaculture has to be sustainable and environment friendly. Recommendation of UNEP/CBD/COP 2001 favours a science-based risk assessment, including environmental impact assessment, should be carried out as part of the evaluation process before coming to a decision on whether or not to authorize a proposed introduction. India, as in many countries, has a National Committee on Introduction of Exotic Aquatic Organisms to approve the introduction of non-native germplasms in the country, which is, at present based upon the scientific comments from relevant organizations. To avoid invasive risks, an evaluation based decision support system is necessary and which might be well followed by experimental evaluations. In the scenario which foresee rising demand for introductions, an objectivity is required to be infused in the process of decision making. One of the method could be developing or adapting a suitable Risk benefit assessment model to score the germplasms, before it is decided for introductions. Some of the countries such as Norway, New Zealand etc have such question based models. There is need for debate to restructure such models so that these suite the need for biodiversity rich nations like India and other nations in Asia.

In this backdrop ICAR-NBFGR, Lucknow and World Wildlife Fund- India (WWF-India), New Delhi is organizing a joint Expert Consultation on " Consultation on Invasive Alien Fish Species: Need for a Risk Benefit Assessment and a Management framework for healthy freshwater systems." The present consultation will flag the need to for an equilibrium between need for non-native germplasms and at the same time to minimize consequences of introductions on ecology and native fish diversity such introductions.

## About WWF – India

WWF-India has been involved in the conservation of freshwater (rivers and wetlands) species and their habitats across Upper Ganga, Ramganga and Upper stretch of Bhavani River Systems. The team works in close collaboration with the State Forest Department of Uttar Pradesh, Uttarakhand and, Karnataka.

Field assessments conducted in the Upper Bhavani River have recorded species diversity and richness. It has led to mapping of threats to species and the habitat. A study to determine species specific E-Flows requirements was conducted for Upper Bhavani.

A dedicated radio-telemetry study has been initiated in the state of Uttarakhand to understand the habitat preference and movement patterns of Golden Mahseer in the Ganga-Nayar complex. Additionally, workshops have been conducted along River Kosi and the Ganga-Nayar complex in Uttarakhand state to sensitize local stakeholders to engage in Golden Mahseer conservation.

A comprehensive strategy for sustainable fishing for a Narora - Ramsar Site in the Upper Ganga River will be devised in collaboration with stakeholders. The team is partnering with the state Forest Department to develop a monitoring mechanism to restrict fishing in the Hastinapur Wildlife Sanctuary.

The aquatic biodiversity team of WWF-India has been contributing to various Environmental Flows Assessment exercises that the organization is conducting.

## Thematic program

- Status of alien fish species and invasive in India/Other country representative
- Presentation on available Risk Assessment models
- Experience sharing by the experts
- Presentation of proposed risk benefit assessment model
- Way forward on risk assessment and introduction of AqGR for food and trade.

## Participation:

### Expected no of Participants 30

The participants will be invited panelists, experts and personals involved with policy, from ICAR institutes, DADF, NFDB, MPEDA, NBA and representatives of regional bodies like NACA, SAARC Secretariat, WWF and selected NGO's with similar expertise.

## Organising Committee

**Convener:** Dr. Kuldeep K. Lal and Dr. Suresh Babu, Director, WWF-India

**Co-conveners:** Dr. K. D. Joshi and Dr. Nitin Kaushal

**Date:** 19th December 2018 (Wednesday)

**Venue:** WWF-India, 172 B, Lodhi Estate, New Delhi-110 003

## **Organisers**

ICAR-National Bureau of Fish Genetic Resources, Lucknow, Uttar Pradesh, India &

WWF-India, New Delhi, India

Aquatic Biodiversity Conservation Society (ABCS), India

## **About New Delhi**

New Delhi is the capital city of India and is regarded as the heart of the nation. The city is popular for its enriched culture and heritage. The city hosts some famous historical monuments and is developing with the passing of time. The capital city is divided into two sections popularly known as Purani Dilli or Old Delhi and Nayi Dilli or New Delhi. Old Delhi is popular for its ancient culture and monuments along with its crowded lanes. Mughal Emperor Shahjahan founded Old Delhi in 1639 which was formerly known as Shahjahanabad. During ancient times, the city was known for housing exquisitely designed mosques, beautiful gardens, and magnificent mansions of members and nobles of the royal court. Though this part of Delhi has become extremely crowded yet it symbolizes the heart of Delhi.

The remarkable Indian Capital was architecturally designed by the British architect Edwin Lutyens and was named after him. It has a pleasant contrast to the twisted streets of Old Delhi. Enriched with history and culture, the impressive avenues and imperial buildings of New Delhi are included in the list of attractions. Humayun's Tomb, Gandhi Ji's Delhi home, the site where he was assassinated are all located in New Delhi that draws a large number of tourists every year. Akshardham Temple, India Gate and Gurudwara Bangla Sahib are some of the major attractions of New Delhi.

Delhi is well connected with the neighbouring regions and other major cities of India through all modes of transport such as airways, railways and roadways. The traffic of New Delhi remains busy and chaotic because of increased population and vehicles. One needs to negotiate on fare for taxis and autos while hiring to travel within the city. One can also opt for the safest, convenient and quickest mode of transport - the Metro Rail to travel across the city and to its nearby regions.

## **Weather conditions**

The weather in New Delhi during 1st week of December is expected to be little bit colder however the day will be pleasant. Normal woollen clothes will be required during the period.

## **Contact address**

### **Kuldeep Kumar Lal, Director**

ICAR-National Bureau of Fish Genetic Resources

Canal Ring Road, P.O. Dilkusha, Lucknow-226002

Uttar Pradesh, India; Phone: 0522-2441735, Mobile: 9415102037

E-mail: kuldeepklal@gmail.com, director@nbfgfr.res.in

**Title: Consultation on Invasive Alien Fish Species: Need for a Risk Benefit Assessment and a Management framework for healthy freshwater systems**

Venue: WWF-India, New Delhi

Date: December 19, 2018

Time: 10:00 AM to 5:45 PM (400 Minutes)

Key objectives:

1. To share the risk assessment model and get feedback from diverse stakeholders
2. To develop a framework mitigate risks and manage invasive alien fish species

40 minutes	Inaugural Session
	Context setting : Key issues, alien fish species in the country and need for a risk and management framework
	Address
	Inaugural address
60 minutes	Session 1: Status of Alien Fish and Invasiveness: Key challenges and Introduction Policy Framework
	Presentation from India
	South East Asia (Mekong river Basin Countries) by NACA
	Other South Asia countries : SAARC representative
130 minutes	Session 2: Risk Assessment
	40 minutes
	Lead presentation: Risk Assessment modelling: Globally available risk assessment tools, NGBFR
	60 minutes
	Focus Group discussion on the risk assessment model
	30 minutes
	Feedback

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60 minutes	Lunch break
90 minutes	Session 3: Developing a risk mitigation and a Management framework for freshwater systems
	60 minutes Group work
	30 Minutes Plenary
20 minutes	Next steps