



**GNAMAMI
GANGE**



INVASIVE FISH SPECIES OF RIVER GANGA

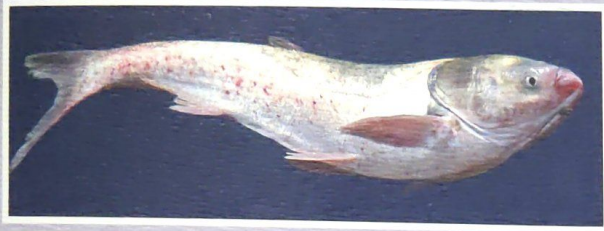


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Freshwater fish biodiversity including the mighty river Ganga is depleting at an alarming rate owing to introduction of invasive species and constant anthropogenic pressure. The unsystematic shifting of these invasive fishes has created a wide spectrum of changes in the sustenance of indigenous fish species. Besides competing for food and space, these invasive fishes contribute to the loss of pure genetic traits from the river system through the production of hybrids. Habitat modification, low river flow, siltation are some of the major reasons behind the establishment of invasives. The impending risks thus affect the biodiversity as a whole including hampering the socio cultural attributes of the fisher community who depends on the capture fisheries.

River Ganga harbours more than 260 fish species which includes a wide array of freshwater and brackish water fishes. Eight different invasive fish species have been identified from river Ganga delivering potential risk to the river system. All these invasive fishes have been introduced in regard to aquaculture propagation during different time periods. Owing to their fast growth, wide range of thermal and disease tolerance these species have gained immense popularity among the fish farming communities in the country. Out of those eight, species namely *Cyprinus carpio* (Common carp), *Hypophthalmichthys nobilis* (Big head carp), *Hypophthalmichthys molitrix* (Silver carp), *Oreochromis niloticus* (Nile tilapia), *Clarias gariepinus* (North African Catfish), *Ctenopharyngodon idella* (Grass carp) are fairly common in most of the stretches of river. Intense landing of Common carp and Tilapia is matter of concern in the middle stretch (Kanpur to Buxar) of river Ganga. Sporadic abundance of few invasive fish species in different stretches of river has also created much attention among researchers, biologist and human communities with regard to their abundance and proliferation.



Scientific name : *Hypophthalmichthys nobilis*
Richardson, 1845

Common name : Big head Carp

Vernacular name : Big head/Brigade

Classification : Class : Teleostomii
Order : Cypriniformes
Family : Cyprinidae
Genus : *Hypophthalmichthys*
Species : *nobilis*

Origin of the Species: The species is endemic to eastern China (Jennings, 1988)

Habitat: Freshwater

Introduced in Indian waters: Introduced in the year 1987 from Bangladesh (Shetty, 1989)

Repeatability in catch: ± 0.47 (Standard Deviation of Mean)

Gear used for catching: Drift gill net (Mesh size: 15-30 cm)

Area of distribution in river Ganga :

Species	Harsil	Tehri	Haridwar	Bijnor	Narora	Farrukhabad	KanpurA	Allahabad	Varanasi	Buxar	Patna	Bhagalpur	Farakka	Berhampore	Balagath
<i>Hypophthalmichthys nobilis</i>															

Moderately Infested
 Significantly Infested
 Absent



Scientific name : *Hypophthalmichthys molitrix*
Valenciennes, 1844

Common name : Silver carp

Vernacular name : Silver

Classification : Class : Teleostomii
Order : Cypriniformes
Family : Cyprinidae
Genus : *Hypophthalmichthys*
Species : *molitrix*

Origin of the Species: The species is native to eastern Asia from the Amur River of far eastern Russia south through much of eastern half of China to Pearl River, including northern Vietnam (Berg 1949; Li and Fang 1990).

Habitat : Freshwater

Introduction in Indian waters : The species was introduced to vacant the ecological niche of the pond culture in 1958 (Tripathi, 1958)

Repeatability in catch : ± 0.38 (Standard Deviation of Mean)

Gear used for catching : Drift gill net (Mesh size: 15-30 cm)

Area of distribution in river Ganga :

Species	Harsil	Tehri	Haridwar	Bijnor	Narora	Farrukhabad	KanpurA	Allahabad	Varanasi	Buxar	Patna	Bhagalpur	Farakka	Berhampore	Balagath
<i>Hypophthalmichthys molitrix</i>															

Moderately Infested
 Significantly Infested
 Absent



Scientific name : *Ctenopharyngodon idella*
Valenciennes, 1844

Common name : Grass carp

Vernacular name : Grass carp

Classification : Class : Teleostomii
Order : Cypriniformes
Family : Cyprinidae
Genus : *Ctenopharyngodon*
Species : *idella*

Origin of the Species: Grass carp is a native to China and Russia, occurring in the lower and middle reaches of the rivers Amur, Ussuri and Sungari and in the Lake Khanka (Berg, 1964),

Habitat: Freshwater

Introduction in Indian waters: Introduced in India in the year 1959 from Hongkong and Japan (Alikhuni, 1963)

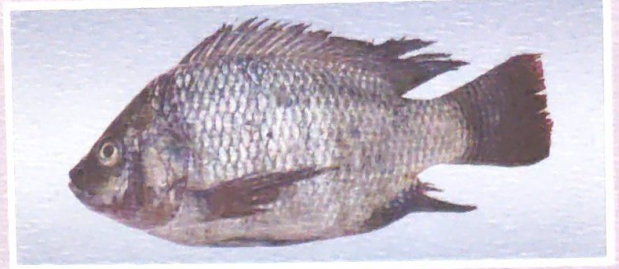
Repeatability in catch: ± 0.38 (Standard Deviation of Mean)

Gear used for catching: Drift gill net (Mesh size: 15-25 cm)

Area of distribution in river Ganga :

Species	Harsil	Tehri	Haridwar	Bijnor	Narora	Farrukhabad	KanpurA	Ilahabad	Varanasi	Buxar	Patna	Bhagalpur	Farakka	Berhampore	Balagarh
<i>Ctenopharyngodon idella</i>															

Moderately Infested
 Significantly Infested
 Absent



Scientific name : *Oreochromis niloticus*
Linnaeus, 1758

Common name : Nile tilapia

Vernacular name : Tilapia/Telpi

Classification : Class : Teleostomii
Order : Perciformes
Family : Cichlidae
Genus : *Oreochromis*
Species : *niloticus*

Origin of the Species: The species is native to Africa and found in the basin of Nile.

Habitat: Freshwater

Introduction in Indian waters: Introduced into the Indian waters in the year 1987 (Singh & Lakra, 2011)

Repeatability in fish catch: ± 24.08 (Standard Deviation of Mean)

Gear used for catching: Drift gill net (Mesh size: 4-8 cm)

Area of distribution in river Ganga :

Species	Harsil	Tehri	Haridwar	Bijnor	Narora	Farrukhabad	KanpurA	Ilahabad	Varanasi	Buxar	Patna	Bhagalpur	Farakka	Berhampore	Balagarh
<i>Oreochromis niloticus</i>															

Moderately Infested
 Significantly Infested
 Absent



Scientific name : *Cyprinus carpio*
Linnaeus, 1758

Common name : Common carp

Vernacular name : Chinese/China

Classification : Class : Teleostomii
Order : Cypriniformes
Family : Cyprinidae
Genus : *Cyprinus*
Species : *carpio*

Origin of the Species: The carp is native to temperate parts of Central Asia

Habitat: Freshwater

Introduction in Indian waters: In the year 1959 in Cuttack (Odisha) from Bangkok for culture and propagation (Shetty, 1989).

Repeatability in fish catch: ± 26.80 (Standard Deviation of Mean)

Gear used for catching: Drift gill net (Mesh size: 8-10 cm); Hook and line

Area of distribution in river Ganga :

Species	Harsil	Tehri	Haridwar	Bijnor	Narora	Farrukhabad	KanpurA	Ilahabad	Varanasi	Buxar	Patna	Bhagalpur	Farakka	Berhampore	Balagarh
<i>Cyprinus carpio</i>															

Moderately Infested
 Significantly Infested
 Absent



Scientific name : *Clarias gariepinus*
Burchell, 1822

Common name : North African sharp toothed catfish

Vernacular name : Thai Magur

Classification : Class : Teleostomii
Order : Siluriformes
Family : Clariidae
Genus : Clarias
Species : *gariepinus*

Origin of the Species : Native to Africa (Vitul et al. 2006)

Introduction in Indian waters: Possibly in the year 1994 in West Bengal through Bangladesh (Singh and Lakra, 2011)

Habitat : Freshwater

Repeatability in fish catch : ± 0.91 (Standard Deviation of Mean)

Gear used for catching : Drift gill net, Hook and line

Area of distribution in river Ganga :

Species	Harsil	Tehri	Haridwar	Bijnor	Narora	Farrukhabad	KanpurA	Ilahabad	Varanasi	Buxar	Patna	Bhagalpur	Farakka	Berhampore	Balagarh
<i>Clarias gariepinus</i>															

Moderately Infested
 Significantly Infested
 Absent



Scientific name : *Pterygoplichthys disjunctivus*
Weber, 1991

Common name : Vermiculated sailfin catfish

Vernacular name : Crocodile Fish

Classification : Class : Teleostomii
Order : Siluriformes
Family : Loricariidae
Genus : *Pterygoplichthys*
Species : *disjunctivus*

Origin of the Species: South American continent (Madeira basin)

Introduction in Indian waters: *Pterygoplichthys* spp. in river Ganga in Patna (Bihar) and in river Gomti near Lucknow (Uttar Pradesh) was first reported by Singh and Lakra (2011).

Habitat: Freshwater

Repeatability in fish catch: ± 0.01 (Standard Deviation of Mean)

Gear used for catching: Drift gill net (mesh size: 4.5 cm)

Area of distribution in river Ganga :

Species	Harsil	Tehri	Haridwar	Bijnor	Narora	Farrukhabad	KanpurA	Ilahabad	Varanasi	Buxar	Patna	Bhagalpur	Farakka	Berhampore	Balagarh
<i>Pterygoplichthys disjunctivus</i>															

Moderately Infested
 Significantly Infested
 Absent



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