GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Hypophthalmichthys molitrix***

Hypophthalmichthys molitrix 正體中文

System: Freshwater

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae

Common name

fytofag (Farsi), byal tolstolob (Bulgarian), asimokyprinos (Greek), bin ue (Cantonese), belyi tolstolobik (Russian), ballgjeri i bardhe (Albanian), belyi tolstolob (Russian), cho ue (Cantonese), carpe chinoise (French), Chinese schemer (English), carpa argentata (Italian), carpe asiatique (French), carpa-prateada (Portuguese), carpa plateada (Spanish), carpe argenté (French), lin ue (Cantonese), kopur noqreai (Farsi), pla pin heu (Thai), hakuren (Japanese), kasaf (Hebrew), hopeapaksuotsa (Finnish), kap perak (Malay), phytophague (Farsi), pla pae long (Thai), pla pin hea (Thai), pla lin (Thai), pla leng heu (Thai), pla leng hea (Thai), tongsan putih (Malay), silwerkarp (Afrikaans), silverkarp (Swedish), silberkarpfen (German), silver carp (English), tolpyga (Russian), tolstolob (German), tolpyga biala (Polish), tolstolobik (Russian), tolstolob biely (Slovak), crap argintiu (Romanian), sølvkarpe (Danish), tolstolobik obecný (Czech), tolstolobik bílý (Czech), zilverkarper (Dutch), tovstolob zvychajnyi (Ukrainian), toplyga biala (Polish), belli-gende (Kanarese), crap-chinezesc-argintiu (Romanian), amour argenté (French), Sølvkarpe (Norwegian), fehér busa (Hungarian)

Synonym

Cephalus mantschuricus , Basilewsky, 1855
Abramocephalus microlepis , Steindachner, 1869
Hypophthalmichthys dabry , Guichenot, 1871
Onychodon mantschuricus , Basilewsky, 1872
Hypophthalmichthys dybowskii , Herzenstein, 1888
Leuciscus hypophthalmus , Richardson, 1945
Leuciscus molitrix , Valenciennes, 1844
Hypophthalmichthys molitrix , (Valenciennes, 1844)
Hypothamicthys molitrix , (Valenciennes, 1844)
Hypothalmichthys molitrix , (Valenciennes, 1844)

Similar species

Hypophthalmichthys nobilis

Summary

Hypophthalmichthys molitrix is a carp, native to Asia. Hypophthalmichthys molitrix have been introduced around the world for aquaculture purposes and also for controlling excessive growth of phytoplankton in natural waters. Hypophthalmichthys molitrix have the potential to reduce native diversity by competing for and depleting zooplankton populations, altering the food web. Hypophthalmichthys molitrix have also been found to carry and transmit the disease Salmonella typhimurium.

view this species on IUCN Red List

Species Description
The Gulf States Marine Fisheries Commission (2003) states that, \"*H. molitrix* are large, laterally compressed cyprinids with a uniform silver colouration. There are between 95 and 103 scales in the lateral line. The mouth is relatively large, upturned and toothless. Small specimens do not have spines on their fins, whereas large specimens have a hard, stiff spine with fine serrae on its posterior margin, at the front end of the pectoral, and moderately strong spines in their dorsal and anal fins. The dorsal fin origin is behind the pelvic fin insertion. There are 8 dorsal rays and 12-13 anal rays. The pharyngeal teeth count is 4-4. The gill rakers are fused into a sponge-like porous plate (Robison and Buchanan, 1988).\" \"Silver carp (*H. molitrix*) are a distinctive bright silver. They have small scales and no barbels\" (Atlas of New Zealand Freshwater Fishes, 2005). FishBase (2005) reports that, \"*H. molitrix* is an active species well known for its habit of leaping clear of the water when disturbed. It swims just beneath the water surface.\"

Notes
Recent research has shown that certain cultural practices are also confounding carp management. Higbee *et al.* (2004) state that, \"It has been discovered that an increasing population within the Great Lakes region uses live invasive fish for religious and cultural purposes. Asian carp, such as *H. molitrix*, have been discovered in public ponds and lagoons in the Great Lakes region, and media stories indicate that these fish are being intentionally released as part of a religious ceremony. The hojo-e ceremony of releasing living beings into the wild is a ritual performed in a number of Buddhist countries, particularly in Eastern Asia. The ritual, developed in Japan, is based on the principle of compassionate action toward animals to accrue merit for the afterlife. Followers of this tradition believe that performing good deeds such as releasing captive animals will lengthen their own life span. Although this practice occurs in the United States (where it is common to release goldfish, turtles, and birds), this ritual is usually performed in a pond at a Buddhist temple under the guidance of a monk. In the Czech Republic, it is tradition to keep a live carp in the bathtub for a few days before a Christmas feast. It has been found that some people buy two; one to eat, and one to release into a river\".

Lifecycle Stages
H. molitrix require bodies of water with some current for eggs to float and develop properly. Carp carry out migrations to communal spawning grounds during spring flooding. The prefer to spawn in small groups of 15 to 25 fish at dusk and dawn, at water temperatures of between 18-20°C. Typical spawning age can be from 3 to 10 years old. Females can lay from 299 to 5400 eggs (The Gulf States Marine Fisheries Commission, 2003).

Uses
Elvira (2001) reports that, \" *H. molitrix* have been widely introduced specifically to control excessive growths of phytoplankton in natural waters.\"

Habitat Description
The Gulf States Marine Fisheries Commission (2003) report that *H. molitrix* are fresh water species and are not found in saline waters. While the species can inhabit lakes and ponds, for spawning to occur it requires moving water with sufficient current to allow proper egg development. Spawning of *H. molitrix* is similar to *Aristichthys nobilis* in that it occurs in swift channels of large rivers. Flooding of lowland areas is a necessary requirement as these become the nursery areas for larvae and juveniles (Burr *et al.* 1996).

Reproduction
The Gulf States Marine Fisheries Commission (2003) reports that *H. molitrix* require bodies of water with some current for eggs to float and develop properly. Carp carry out migrations to communal spawning grounds during spring flooding. The prefer to spawn in small groups of 15 to 25 fish at dusk and dawn, at water temperatures of between 18-20°C. Typical spawning age can be from 3 to 10 years old. Females can lay from 299 to 5400 eggs (The Gulf States Marine Fisheries Commission, 2003).

Nutrition
The Atlas of New Zealand Freshwater Fishes (2005) states that, \"*H. molitrix* feed by filtering phytoplankton from the water using specialized gill structures to do so and their gut is greatly elongated to aid digestion of their food.\" \"With its spongelike gill rakers, *H. molitrix* is capable of straining organisms as small as 4 microns in diameter and is apparently efficient at digesting green and bluegreen algae (Robison and Buchanan 1988)\" (Burr *et al.* 1999).\" Though removal rates of silver carp are highest in the particle size range 17 to 70 microns (Dong and Li 1994)

General Impacts
Burr *et al.* (1996) state that, \"The potential impact of *H. molitrix* and *A. nobilis* (*Aristichthys nobilis*) is not adequately known. Markets for these carp apparently have not become well established. Confusion over the correct identity of these species and the legality of taking this fish in commercial harvests has resulted in its consideration as a nuisance by some fishermen we have interviewed.\" The Gulf States Marine Fisheries Commission (2003) states that, \"*H. molitrix* are capable of consuming large quantities of phytoplankton. Nonetheless, potential effects of this species' introductions are difficult to assess. If stable breeding populations were to form and the number of individuals became abundant, shifts in food web structure could be expected. Although reported to consume mostly phytoplankton, and equipped with a highly specialized filtering apparatus, *H. molitrix* consume whatever form of plankton is available in its environment. Where phytoplankton is scarce this species will consume zooplankton (Spataru and Gophen, 1985; Burke *et al.* 1986). Spataru and Gophen (1985) have reported declines in zooplankton biomass which they attribute to stocked *H. molitrix*.\"
The Gulf States Marine Fisheries Commission (2003) states that, \"*H. molitrix* can transport diseases to new areas. Bocek *et al.* (1992) found this species to be an effective carrier of *Salmonella typhimurium*.\"

Management Info
Higbee *et al.* (2004) states that, \"A regulatory approach of identifying legal responsibility and developing consistent regulations will be needed on a regional basis to prevent intentional or unintentional release of invasive species including carp such as *H. molitrix*. Managers, however, must also contend with the reality that the absence of adequate enforcement mechanisms compromises the effectiveness of these regulations.\"

Pathway
H. molitrix were initially introduced into U.S. waterways through their unintentional escape from southern aquaculture facilities. Accidental release of *H. molitrix* from these facilities resulted from 1990 floods in the Mississippi River systemThe silver carp *H. molitrix* was imported in 1973 for phytoplankton control in eutrophic water and as a food fish. This species hitchhiked to Florida in a shipment of grass carp for vegetation control (Middlemas 1994).It is suspected that the live food fish industry could be a potential pathway for introducing Asian carp into Great Lakes waters (Higbee *et al.* 2004).

Principal source: Higbee *et al.* 2004. The Live Food Fish Industry: New Challenges in Preventing the Introduction and Spread of Aquatic Invasive Species

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ALIEN RANGE

[1] AFGHANISTAN
[1] ALGERIA
[1] ARMENIA
[1] AUSTRIA
[1] BANGLADESH
[1] BELARUS

[1] BHUTAN
[1] COSTA RICA
[1] CYPRUS
[1] DENMARK
[1] EGYPT
[1] FIJI
[1] GERMANY
[1] GREECE
[1] HONG KONG
[2] INDIA
[1] IRAN, ISLAMIC REPUBLIC OF
[1] ITALY
[1] JAPAN
[1] KOREA, REPUBLIC OF
[1] LATVIA
[1] MALAYSIA
[1] MEXICO
[1] MOROCCO
[1] NETHERLANDS
[1] PAKISTAN
[1] PHILIPPINES
[1] PUERTO RICO
[1] RWANDA
[1] SINGAPORE
[1] SLOVENIA
[1] SRI LANKA
[1] TAIWAN
[1] TURKMENISTAN
[1] UNITED KINGDOM
[1] UZBEKISTAN
[4] BRAZIL
[1] CUBA
[1] DANUBE RIVER (EX-YUGOSLAVIA)
[1] DOMINICAN REPUBLIC
[1] ETHIOPIA
[1] FRANCE
[1] GREAT LAKES
[1] HONDURAS
[1] HUNGARY
[1] INDONESIA
[1] IRAQ
[1] JAMAICA
[1] KAZAKHSTAN
[1] LAO PEOPLE'S DEMOCRATIC REPUBLIC
[1] MADAGASCAR
[1] MAURITIUS
[1] MOLDOVA, REPUBLIC OF
[1] NEPAL
[1] NEW ZEALAND
[1] PANAMA
[1] POLAND
[2] ROMANIA
[1] SERBIA AND MONTENEGRO
[2] SLOVAKIA
[1] SOUTH AFRICA
[1] SWEDEN
[1] THAILAND
[1] UKRAINE
[18] UNITED STATES
[1] VIET NAM

Red List assessed species 1: CR = 1;

Pseudobagrus medianalis **CR**

BIBLIOGRAPHY

35 references found for **Hypophthalmichthys molitrix**

Managment information
Aquatic Invaders of Belarus., 2007. Alien Species Database *Hypophthalmichthys molitrix*
Summary: This database is of alien aquatic animals inhabiting waterbodies of the Republic of Belarus. It allows to search the species by scientific taxonomy and to get information on their origin, distribution and potential ecological impacts. The database was composed in result of the analysis of literature published during the last century and authors unpublished data. One can find some general information on Belarusian waterbodies, history of construction and functioning of the interbasin shipping canals, links to related sites, etc. The site is under testing and only an English version is available, a Russian version is expected shortly.
The database is available from: http://www.aliensinbelarus.com/content/view/12/28/.
This page is available from: http://www.aliensinbelarus.com/index.php?option=com_database&Itemid=27&id=51&task=one_dat [Accessed 28 May 2007]

Centre for Environment, Fisheries & Aquaculture Science (CEFAS)., 2008. Decision support tools-Identifying potentially invasive non-native marine and freshwater species: fish, invertebrates, amphibians.
Summary: The electronic tool kits made available on the Cefas page for free download are Crown Copyright (2007-2008). As such, these are freeware and may be freely distributed provided this notice is retained. No warranty, expressed or implied, is made and users should satisfy themselves as to the applicability of the results in any given circumstance. Toolkits available include 1) FISK- Freshwater Fish Invasiveness Scoring Kit (English and Spanish language version); 2) MFISK- Marine Fish Invasiveness Scoring Kit; 3) MI-ISK- Marine invertebrate Invasiveness Scoring Kit; 4) FI-ISK- Freshwater Invertebrate Invasiveness Scoring Kit and AmphISK- Amphibian Invasiveness Scoring Kit. These tool kits were developed by Cefas, with new VisualBasic and computational programming by Lorenzo Vilizzi, David Cooper, Andy South and Gordon H. Copp, based on VisualBasic code in the original Weed Risk Assessment (WRA) tool kit of P.C. Pheloung, P.A. Williams & S.R. Halloy (1999).
The decision support tools are available from:
http://cefas.defra.gov.uk/our-science/ecosystems-and-biodiversity/non-native-species/decision-support-tools.aspx [Accessed 13 October 2011]
The guidance document is available from http://www.cefas.co.uk/media/118009/fisk_guide_v2.pdf [Accessed 13 January 2009].
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Clearwater, Susan J.; Chris W. Hickey and Michael L. Martin. 2008. Overview of potential piscicides and molluscicides for controlling aquatic pest species in New Zealand. Science for conservation 283. March 2008, New Zealand Department of Conservation
Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/sfc283entire.pdf [Accessed 20 March 2008]
Copp, G.H., Garthwaite, R. and Gozlan, R.E., 2005. Risk identification and assessment of non-native freshwater fishes: concepts and perspectives on protocols for the UK. Sci. Ser. Tech Rep., Cefas Lowestoft, 129: 32pp.
Summary: The discussion paper presents a conceptual risk assessment approach for freshwater fish species that addresses the first two elements (hazard identification, hazard assessment) of the UK environmental risk strategy The paper presents a few worked examples of assessments on species to facilitate discussion.
Available from: http://www.cefas.co.uk/publications/techrep/tech129.pdf [Accessed 1 September 2005]
Hewitt, C.L, Campbell, M.L. and Gollasch, S. 2006. Alien Species in Aquaculture. Considerations for responsible use. IUCN, Gland, Switzerland and Cambridge, UK. viii + 32 pp.
Summary: This publication aims to first provide decision makers and managers with information on the existing international and regional regulations that address the use of alien species in aquaculture, either directly or indirectly; and three examples of national responses to this issue (New Zealand, Australia and Chile).
Available from: http://data.iucn.org/dbtw-wpd/edocs/2006-036.pdf [Accessed 22 September 2008]
Higbee, E., S. Fellow, and K. G. Shwayder. 2004. The Live Food Fish Industry: New Challenges in Preventing he Introduction and Spread of Aquatic Invasive Species. ANS Update: Fall/Winter 2004 Volume 10, No. 2
Mendoza, R.E.; Cudmore, B.; Orr, R.; Balderas, S.C.; Courtenay, W.R.; Osorio, P.K.; Mandrak, N.; Torres, P.A.; Damian, M.A.; Gallardo, C.E.; Sanguines, A.G.; Greene, G.; Lee, D.; Orbe-Mendoza, A.; Martinez, C.R.; and Arana, O.S. 2009. Trinational Risk Assessment Guidelines for Aquatic Alien Invasive Species. Commission for Environmental Cooperation. 393, rue St-Jacques Ouest, Bureau 200, Montr al (Qu bec), Canada. ISBN 978-2-923358-48-1.
Summary: In 1993, Canada, Mexico and the United States signed the North American Agreement on Environmental Cooperation (NAAEC) as a side agreement to the North American Free Trade Agreement (NAFTA). The NAAEC established the Commission for Environmental Cooperation (CEC) to help the Parties ensure that improved economic efficiency occurred simultaneously with trinational environmental cooperation. The NAAEC highlighted biodiversity as a key area for trinational cooperation. In 2001, the CEC adopted a resolution (Council Resolution 01-03), which created the Biodiversity Conservation Working Group (BCWG), a working group of high-level policy makers from Canada, Mexico and the United States. In 2003, the BCWG produced the Strategic Plan for North American Cooperation in the Conservation of Biodiversity. This strategy identified responding to threats, such as invasive species, as a priority action area. In 2004, the BCWG, recognizing the importance of prevention in addressing invasive species, agreed to work together to develop the draft CEC Risk Assessment Guidelines for Aquatic Alien Invasive Species (hereafter referred to as the Guidelines). These Guidelines will serve as a tool to North American resource managers who are evaluating whether or not to introduce a non-native species into a new ecosystem. Through this collaborative process, the BCWG has begun to implement its strategy as well as address an important trade and environment issue. With increased trade comes an increase in the potential for economic growth as well as biological invasion, by working to minimize the potential adverse impacts from trade, the CEC Parties are working to maximize the gains from trade while minimizing the environmental costs.
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French version: http://www.cec.org/Storage/62/5517_07-64-CEC%20invasives%20risk%20guidelines-full-report_fr.pdf [Accessed 15 June 2010]
Spanish version: http://www.cec.org/Storage/62/5518_07-64-CEC%20invasives%20risk%20guidelines-full-report_es.pdf [Accessed 15 June 2010].
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Ciolac, A. 2004. Migration of Fishes in Romanian Danube River. Applied Ecology and Environmental Research 2(1):143-163.
CONABIO. 2008. Sistema de informaci□n sobre especies invasoras en M□xico. Especies invasoras - Peces. Comisi□n Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.
Summary: English:
The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (http://www.conabio.gob.mx/invasoras/index.php/Portada), under the section Novedades for information on updates.
Invasive species - fish is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Peces [Accessed 30 July 2008]
Spanish:
La lista de especies del Sistema de informaci□n sobre especies invasoras de m□xico cuenta actualmente con informaci□n aceca de nombre cient□fico, familia, grupo y nombre com□n, as□ como h□bitat, estado de la invasi□n en M□xico, rutas de introducci□n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p□gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci□n, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la secci□n novedades, para conocer los cambios.
Especies invasoras - Peces is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Peces [Accessed 30 July 2008]
DIAS (Database on Introductions of Aquatic Species) *Hypophthalmichthys molitrix and Hypophthalmichthys nobilis*
Summary: The database includes records of species introduced or transferred from one country to another. The FAO Database on Introductions of Aquatic Species (DIAS) was initiated by R. Welcomme in the early 1980s. Initially it considered primarily only freshwater species and formed the basis for the 1988 FAO Fisheries Technical Paper No. 294. Today DIAS has been expanded to include additional taxa, such as molluscs and crustaceans, and marine species.
This factsheet is available from:
http://www.fao.org/figis/servlet/FsSearchServlet?qid=fsl_55061&r1=1&bsize=136&rn=136&lixsl=webapps/figis/introsp/format/searchintrosplist.xsl [Accessed 10 April 2006]
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FishBase, 2005. *Hypophthalmichthys molitrix*. Froese, R. and D. Pauly.
Summary: FishBase is a global information system with all you ever wanted to know about fishes . FishBase on the web contains practically all fish species known to science. FishBase was developed at the WorldFish Center in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and many other partners, and with support from the European Commission (EC). Since 2001 FishBase is supported by a consortium of seven research institutions. You can search on Search FishBase
This species profile is available from: http://www.fishbase.org/summary/speciessummary.cfm?id=274 [Accessed 27 May 2005]
Freshwater Biodata Information System New Zealand (FBIS), 2005
Summary: The Freshwater Biodata Information System (FBIS) contains fish, algae, aquatic plant and invertebrate data and metadata gathered from New Zealand s freshwater streams, rivers and lakes. FBIS provides different ways to search for biodata: choose a predefined search from a list of common searches; use the map view to draw a box on a map and search for biodata; or create your own search for maximum search flexibility. FBIS is offered as a nationally available resource for the New Zealand public, institutions and companies who need access to a well-maintained long-term data repository.
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Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=163691 [Accessed March 2005]
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