GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Carassius auratus***

Carassius auratus 正體中文 **System:** Freshwater

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae

Common name

peshk i kuq (Albanian, Albania), gullfisk (Norwegian), carpa dorada (Spanish, Mexico), cheisopsaro (Greek), carassio dorato (Italian), caras-auriu (Romanian), caras rosu (Romanian), I'a'ula'ula (Hawaiian), guldfisk (Danish), chernyi teleskop (Russian), karas vetší (Czech), karas zlatý (Slovak), chrysopsaro (Greek), Guldfisk (Swedish, Sweden), edible goldfish (English, Malaysia), dorade de Chine (French), chryssopsaro (Greek), ciprino dorato (Italian), Goudvis (Afrikaans, South Africa), gold crucian carp (English, Taiwan), gibel carp (English, Kazakhstan), funa (Hawaiian), goudvis (Dutch, Netherlands), golden carp (English, Australia), goldfish (English), Goldfisch (German), ikan mas (Malay), kam ue (Cantonese, Hong Kong), kam tsak (Cantonese, Hong Kong), karas zlocisty a. chinski (Polish), karas zlocisty (Polish), karas stribrity vychodoasijsky (Czech), kin-buna (Japanese), karuss (Norwegian), pesco rosso (Italian, Switzerland), native carp (English, Australia), zlatnakarracuda (Bulgarian), karas stříbritý (Czech), pesce dorato (Italian, Italy), mahi-e-hoz (Farsi, Iran), peixe-dourado (Portuguese), peixe encarnado (Portuguese), ngan tsak (Cantonese, Hong Kong), peixe dourado (Portuguese), pez dorado (Spanish, Mexico), kirmizi balik (Turkish), kultakala (Finnish), tawes (Tagalog, Philippines), pez rojo (Spanish, Spain), sølvkaruds (Danish), sølvkarusse (Danish), poisson rouge (French), serebryanyi karas' (Russian, Russian Fed), tsak ue (Cantonese, Hong Kong), karas cinsky (Czech), karas (Russian, Ukraine), aranyhal (Hungarian, Hungary), zolotaja rybka (Russian, Belarus), carassin doré (French), cyprin doré (French), kapr zlatý (Czech), kapřík zlatý (Czech), pimpão (Portuguese, Portugal)

Synonym

Carassius auratus auratus , (Linnaeus, 1758)
Carassius carassius auratus , (Linnaeus, 1758)
Cyprinus auratus , (Linnaeus, 1758)
Cyprinus mauritianus , (Bennett, 1832)
Cyprinus langsdorfi , (Cuvier & Valenciennes, 1842)
Cyprinus thoracatus , (Valenciennes, 1842)
Carassius gibelioides , (non Cantor, 1842)
Carassius encobia , (Bonaparte, 1845)
Leuciscus auratus , (Mauduyt, 1849-51)
Carassius chinensis , (Gronow, 1854)
Cyprinus maillardi , (Guichenot, 1863)
Carassius auratus cantonensis , (Tchang, 1933)

Similar species

Cyprinus carpio

Summary

Native to Asia, goldfish (Carassius auratus) have been introduced worldwide due to their popularity as pond and aquarium fish. Releases, both intentional and unintentional, have meant that this species has formed wild populations in many new locations. Concerns have been raised about the impacts that goldfish have on the aquatic community, including increasing turbidity, predation upon native fish, and helping to facilitate algal blooms.

view this species on IUCN Red List

Species Description
A small to moderately-sized fish with a deep body and rounded cross-section. Large head and eyes with a small mouth and a forked tail. Scales are large and the single dorsal fin has 3-4 stout spines at the leading edge. Colour ranges from olive-bronze to deep golden along dorsal surface, fading to silvery-white along the belly (McDowall, 2000). May grow up to 41cm in length, 2kg in weight and live for 30 years in captivity (FishBase, 2004).

Notes
Many different varities of goldfish have been produced, through selective breeding for a wide variety of colours and fin shapes. These fish usually revert to olive-bronze wild colouration and normal fin shapes if released from captivity (McDowall, 2000).

Lifecycle Stages
Eggs hatch in around a week. Young attach to aquatic plants for several days while yolk sac is absorbed (McDowall, 2000).

Uses
Valued as an ornamental pond and aquarium fish. Used in scientific experiments (FishBase, 2004).

Habitat Description
Rivers, lakes, ponds, lagoons and ditches with cold, slow-flowing water and aquatic vegetation (FishBase, 2004). Able to withstand prolonged exposure to salinities above 15 ppt (FishBase, 2004) and can tolerate low levels of dissolved oxygen (McDowall, 2000).

Reproduction
Spawning occurs in shallow water amongst weeds, and up to several hundred thousand small eggs (1-2mm diameter) are laid at once (McDowall, 2000). Individual fish can spawn 3-10 lots of eggs at intervals of 8-10 days. Cold water during winter is essential for proper ova development (FishBase, 2004).

Nutrition
Eats a variety of aquatic plants (including algae), detritus, crustaceans, worms, small insects and snails (FishBase, 2004; McDowall, 2000).

General Impacts
The passage of cyanobacteria through the goldfish intestine stimulates cyanobacterial growth, which may result in algal blooms occurring. The bottom-sucking feeding methods of goldfish can also contribute towards algal blooms by re-suspending nutrients, which makes them available to algae (Morgan & Beatty, 2004). Goldfish have also been known to prey upon the eggs, larvae and adult of native fishes (Morgan & Beatty, 2004), as well as increasing water turbidity and depleting aquatic vegetation (Richardson *et al.*, 1995).

Management Info
Preventative measures: The use of potentially invasive alien species for aquaculture and their accidental release/or escape can have negative impacts on native biodiversity and ecosystems. Hewitt *et al*, (2006) Alien Species in Aquaculture: Considerations for responsible use 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 (Australia, New Zealand and Chile). The publication also provides recommendations for a 'simple' set of guidelines and principles for developing countries that can be applied at a regional or domestic level for the responsible management of Alien Species use in aquaculture development. These guidelines focus primarily on marine systems, however may equally be applied to freshwater.
Copp *et al*, (2005) Risk identification and assessment of non-native freshwater fishes 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. The electronic Decision-support tools- Invasive-species identification tool kits that includes a freshwater and marine fish invasives scoring kit are made available on the Cefas (Centre for Environment, Fisheries & Aquaculture Science) page for free download (subject to Crown Copyright (2007-2008)).
Physical: Gill nets, seine nets and electrofishing can be used to control goldfish populations (Morgan & Beatty, 2004).

Pathway
Often introduced to outdoor ponds as an ornamental fish.Introduced worlwide as aquarium fish.

Principal source: McDowall, R. M. 2000. The Reed field guide to New Zealand freshwater fishes. Auckland, Reed.
FishBase, 2004. Species profile *Carassius auratus*

Compiler: IUCN SSC Invasive Species Specialist Group
Updates with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

Review: Dr. David Rowe, NIWA (National Institute of Water & Atmospheric Research). Hamilton New Zealand.

Pubblication date: 2010-10-04

ALIEN RANGE

[1] AFGHANISTAN
[1] ALBANIA
[1] ARGENTINA
[2] AUSTRALIA
[1] AUSTRIA
[1] BELARUS
[1] BELGIUM
[1] BOLIVIA
[1] BRAZIL
[3] CANADA
[1] CHILE
[1] COLOMBIA
[1] COSTA RICA
[1] CYPRUS
[1] CZECH REPUBLIC
[1] DENMARK
[1] FRANCE
[1] GERMANY
[1] GREECE
[1] HUNGARY
[1] INDIA
[1] INDONESIA
[1] IRAN, ISLAMIC REPUBLIC OF
[1] ISRAEL
[1] ITALY
[1] KAZAKHSTAN
[1] KOREA, REPUBLIC OF
[1] LATVIA
[1] LITHUANIA
[1] MADAGASCAR

[1] MALAYSIA
[1] MEXICO
[1] NAMIBIA
[1] NEW CALEDONIA
[1] NORWAY
[1] PERU
[1] POLAND
[1] PUERTO RICO
[1] ROMANIA
[1] SAMOA
[1] SERBIA AND MONTENEGRO
[1] SLOVAKIA
[1] SPAIN
[1] THAILAND
[1] UNITED KINGDOM
[1] URUGUAY
[1] VIET NAM
[1] ZIMBABWE
[1] MAURITIUS
[1] MOLDOVA, REPUBLIC OF
[1] NETHERLANDS
[1] NEW ZEALAND
[1] PAKISTAN
[1] PHILIPPINES
[1] PORTUGAL
[1] REUNION
[1] RUSSIAN FEDERATION
[1] SAUDI ARABIA
[1] SINGAPORE
[1] SOUTH AFRICA
[1] TAIWAN
[1] UKRAINE
[2] UNITED STATES
[1] UZBEKISTAN
[1] VIRGIN ISLANDS, U.S.

BIBLIOGRAPHY

25 references found for **Carassius auratus**

Managment information

Beatty, S.J. & Morgan, D.L. 2009. Goldfish control in the Vasse River: summary of the 2008 programme. Technical report to Geocatch. Centre for Fish & Fisheries Research, Murdoch University, Western Australia.

Summary: Available from: http://www.geocatch.asn.au/_content/documents/Reports/Goldfish%20control%20in%20the%20Vasse%20River [Accessed 19 March 2009]

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].

Champion, P. Clayton, J. and Rowe, D. 2002. Alien Invaders Lake Managers Handbook. Ministry for the Environment.

Summary: Available from: http://www.mfe.govt.nz/publications/water/lm-alien-invaders-jun02.pdf [Accessed 3 February 2005]

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]

IUCN/SSC Invasive Species Specialist Group (ISSG)., 2010. A Compilation of Information Sources for Conservation Managers.

Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

Kailola., P.J. undated. Risk assessment of ten species of ornamental fish under the Environment Protection and Biodiversity Conservation Act 1999

Summary: http://www.deh.gov.au/biodiversity/trade-use/invitecomment/pubs/ornamental-fish.pdf [Accessed March 2006]

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&#65533;al (Qu&#65533;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 &#65533;Strategic Plan for North American Cooperation in the Conservation of Biodiversity.&#65533; 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.
Available from: English version: http://www.cec.org/Storage/62/5516_07-64-CEC%20invasives%20risk%20guidelines-full-report_en.pdf [Accessed 15 June 2010]
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].
Morgan, David ; Stephen Beatty & Heather McLetchie., 2005. Control of feral Goldfish (*Carassius auratus*) in the Vasse River. Report to the Vasse-Wonnerup LCDC March-April 2005. Centre for Fish & Fisheries Research Murdoch University.
Summary: Available from: http://www.cffr.murdoch.edu.au/reports/Control_of_feral_goldfish_in_the_Vasse_River_2005.pdf [Accessed 19 March 2009]
Morgan, D & Beatty, S. 2004. Fish fauna of the Vasse River and the colonisation by feral goldfish (*Carassius auratus*). Centre for Fish & Fisheries Research, Murdoch University.
Summary: This report presents the results of a survey of the fish population in the Vasse River, Western Australia, with a perticular focus on the feral goldfish population. Goldfish impacts and proposed control methods are discussed.
Available from: http://www.cffr.murdoch.edu.au/reports/VASSE_RIVER_FINAL_REPORT.pdf [Accessed 19 March 2009]
Rowe, D.K and Graynoth, E, 2002. Lake Managers Handbook- Fish in New Zealand Lakes. Ministry for the Environment, Wellington.
Summary: Available from: http://www.mfe.govt.nz/publications/water/lm-fish-in-nz-lakes-jun02.pdf

General information

CONABIO. 2008. Sistema de informaci&#65533;n sobre especies invasoras en M&#65533;xico. Especies invasoras - Peces. Comisi&#65533;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&#65533;n sobre especies invasoras de m&#65533;xico cuenta actualmente con informaci&#65533;n aceca de nombre cient&#65533;fico, familia, grupo y nombre com&#65533;n, as&#65533; como h&#65533;bitat, estado de la invasi&#65533;n en M&#65533;xico, rutas de introducci&#65533;n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p&#65533;gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci&#65533;n, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la secci&#65533;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]
FishBase, 2004. Species profile *Carassius auratus* Goldfish
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=271 [Accessed 5 October, 2004]
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.
Available from: https://secure.niwa.co.nz/fbis/validate.do?search=common [Accessed 5 August 2005]

ITIS (Integrated Taxonomic Information System), 2004. Online Database *Carassius auratus*
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=163350 [Accessed December 31 2004]
Keith, P. 2002. Freshwater fish and decapod crustacean populations on Reunion island, with an assessment of species introductions. bull. Fr. P�che Piscic,, 364, 97-107.
Summary: Cet article propose un bilan de la connaissance des esp�ces de poissons et des crustac�s d�capodes pr�sents dans les eaux douces de La R�union avec une synth�se des esp�ces introduites.
Keith, P. 2005. Revue des introductions de poissons et de crustac�s d�capodes d eau douce en Nouvelle-Cal�donie. Revue d Ecologie (La Terre et la vie), 60, 45-55.
Summary: Cet article propose un bilan complet et actualis� des introductions d esp�ces de poissons et de crustac�s d�capodes dans les eaux douces de Nouvelle-Cal�donie.
Keith, P., Marquet, G., Valade, P., Bosc, P. & Vigneux, E. 2006. Atlas des poissons et crustac�s d�eau douce des Comores, Mascareignes et Seychelles. MNHN, Patrimoines naturels, vol. 67, Paris, 158p.
Keith, P., Vigeux, E. & P. Bosc. 1999. Atlas des poissons et crustac�s d�eau douce de la R�union. Patrimoines Naturels (M.N.H.N./S.P.N.), 39 : 136pp.
Marquet, G., Keith, P., Vigneux, E. 2003. Atlas des poissons et des crustac�s d eau douce de Nouvelle-Cal�donie. Paris, Mus�um national d�histoire naturelle, Collection Patrimoines Naturels 58, 282 p
McDowall, R. M. 1990. New Zealand Freshwater Fishes: a natural history and guide. Auckland. Heinemann Reed.
Summary: An excellent reference book on New Zealand freshwater fish. Contains more in-depth information on species than McDowall, 2000.
McDowall, R. M. 2000. The Reed field guide to New Zealand freshwater fishes. Auckland, Reed.
Summary: Contains short descriptions and distributions far all freshwater fish found in New Zealand. An excellent reference.
Morgan, D. L., Gill, H. S., Maddern, M. G., Beatty, S. J. 2004. Distribution and impacts of introduced freshwater fishes in Western Australia. *New Zealand Journal of Marine and Freshwater Research 38*: 511-523.
Summary: Presents distributional data on the 10 species of introduced freshwater fish in Western Australia.
Pascal, M., Barr�, N., De Garine-Wichatitsky, Lorvelec, O., Fr�tey, T., Brescia, F., Jourdan, H. 2006. Les peuplements n�o-cal�doniens de vert�b�br�s : invasions, disparitions. Pp 111-162, in M.-L. Beauvais *et al.*, : Les esp�ces envahissantes dans l�archipel n�o-cal�donien, Paris, IRD �ditions, 260 p.+ c�d�rom
Summary: Synth�se des introductions d esp�ces de vert�br�s en Nouvelle-Cal�donie et �valuation de leurs impacts.
Richardson, M. J., Whoriskey, F. G., Roy, L. H. 1995. Turbidity generation and biological impacts of an exotic fish, *Carassius auratus*, introduced into shallow seasonally anoxic ponds. Journal of Fish Biology *47(4)*: 576-585.
Summary: Experiments show that goldfish increase turbidity and deplete aquatic vegetation. These effects may impact upon the foraging success of other species.