

## ***Cirrhinus jullieni* (a carp, no common name)**

### **Ecological Risk Screening Summary**

U.S. Fish & Wildlife Service, October 2012

Revised, November 2018

Web Version, 7/29/2019

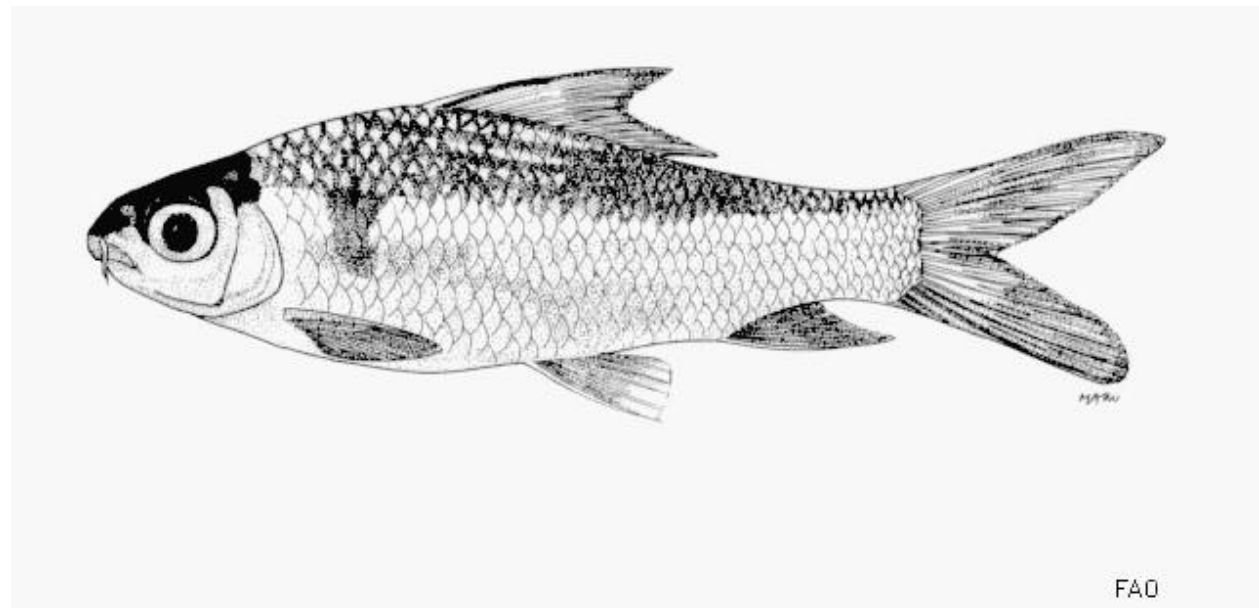


Photo: FAO. Licensed under Creative Commons BY-NC 3.0 Unported. Available:  
<http://www.fishbase.org/photos/PicturesSummary.php?StartRow=0&ID=27148&what=species&TotRec=2>. (October 2012).

## **1 Native Range and Status in the United States**

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### **Native Range**

From Froese and Pauly (2018a):

“Asia: Chao Phraya and lower Mekong basins.”

“[In Cambodia:] Known from the Mekong River [Rainboth 1996; Roberts 1997]. Found in Stung Treng [Eschmeyer 1999] and Tonlé Sap [Kottelat 1985]. Observed in small numbers at Stung Treng in February 1994 and at Phnom Penh markets in January-February 1994 [Roberts and Warren 1994].”

“[In Laos:] Known from the Mekong basin in southernmost Laos below Khone Falls [Roberts 1997].”

“[In Thailand:] Recorded from the Chao Phraya basin. Also known from Phra Nakhon Si Ayutthaya, Uthai Thani, Nakhon Sawan, Phitsanulok, Phrae, Chiang Mai, Chiang Rai, Nong Khai, Khon Kaen, Kanchanaburi, Prachin Buri and Surat Thani [Monkolprasit et al. 1997].”

“[In Vietnam:] Known from the Mekong River [Rainboth 1996; Kottelat 2001].”

## **Status in the United States**

No records of *Cirrhinus jullieni* in the wild or in trade in the United States were found.

## **Means of Introductions in the United States**

No records of *Cirrhinus jullieni* in the wild in the United States were found.

## **Remarks**

A previous version of this ERSS was published in 2012.

# **2 Biology and Ecology**

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## **Taxonomic Hierarchy and Taxonomic Standing**

From Fricke et al. (2018):

“**Current status:** Valid as *Cirrhinus jullieni* Sauvage 1878.”

From Froese and Pauly (2018b):

“Animalia (Kingdom) > Chordata (Phylum) > Vertebrata (Subphylum) > Gnathostomata (Supercalss) > [...] Actinopterygii (Class) > Cypriniformes (Order) > Cyprinidae (Family) > Labeoninae (Subfamily) > *Cirrhinus* (Genus) > *Cirrhinus jullieni* (Species)”

## **Size, Weight, and Age Range**

From Froese and Pauly (2018a):

“Max length : 20.0 cm SL male/unsexed; [Roberts 1997]”

## **Environment**

From Froese and Pauly (2018a):

“Freshwater; brackish; benthopelagic; potamodromous [Riede 2004]”

## Climate/Range

From Froese and Pauly (2018a):

“Tropical”

## Distribution Outside the United States

Native

From Froese and Pauly (2018a):

“Asia: Chao Phraya and lower Mekong basins.”

“[In Cambodia:] Known from the Mekong River [Rainboth 1996; Roberts 1997]. Found in Stung Treng [Eschmeyer 1999] and Tonlé Sap [Kottelat 1985]. Observed in small numbers at Stung Treng in February 1994 and at Phnom Penh markets in January-February 1994 [Roberts and Warren 1994].”

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“[In Vietnam:] Known from the Mekong River [Rainboth 1996; Kottelat 2001].”

Introduced

No records of *Cirrhinus jullieni* introductions were found.

## Means of Introduction Outside the United States

No records of *Cirrhinus jullieni* introductions were found.

## Short Description

From Froese and Pauly (2018a):

“Dorsal spines (total): 0; Dorsal soft rays (total): 14-16; Vertebrae: 34 - 35. Predorsal profile relatively steep; rostral barbels well developed, length more than one-half eye diameter; maxillary barbels absent. Somewhat similar to the much larger species *C. molitorella*, from where it differs markedly in coloration. Also, it is deeper bodied, especially anteriorly, and has a larger, more falcate anal fin, the distal end of which extends posteriorly to below posteriormost scales on caudal fin [Roberts 1997]; 13-14 branched dorsal-fin rays; 65-68 gill rakers on lower arm of first arch; faint dark blotch on body above pectoral fin; smooth upper lip, lower lip weakly papillate [Rainboth 1996]. Body without reticulate pattern; pectoral, pelvic, anal and lower caudal lobe usually brightly bright red [Kottelat 2001].”

## Biology

From Froese and Pauly (2018a):

“Inhabits midwater to bottom depths of rivers, occurring in the main stem and on the floodplains, including freshwater areas that undergo tidal fluctuation. Feeds on algae, detritus and occasionally benthic invertebrates.”

From de Graaf and Chinh (1992):

“At the beginning of the monsoon with the rising of the water level, they either spawn upstream in the main channel (*Cirrhinus jullieni*, [...])”

## Human Uses

From Froese and Pauly (2018a):

“Often marketed fresh and used to make prahoc [fermented fish paste used in Cambodian cooking] [Rainboth 1996].”

## Diseases

**Epizootic ulcerative syndrome is an OIE-reportable disease (OIE 2018).**

Froese and Pauly (2018b) list *Lamproglena cirrhinae* as a parasite of *C. jullieni*.

From Chai et al. (2014):

“In the present study, *H. [Haplorchis] yokogawai* metacercariae were detected in 5 fish species (*P. proctozyron*, *C. jullieni*, [...])”

“In the present study, *O. [Opisthorchis] viverrini* metacercariae were detected in 11 fish species (*B. altus*, *B. schwanefeldi*, *Cirrhinus jullieni*, [...])”

From Boonchot and Wongsawad (2005):

“A new species [of helminth parasite], *Thaparogyrus jullieni*, was found in *Cirrhinus jullieni* from the Suphan Buri River, Suphan Buri Province (Purivirojkul, 1999).”

Boonyaratpalin (1989) lists *C. jullieni* as a host for *Aeromonas hydrophila*, a causative agent for epizootic ulcerative syndrome.

## Threat to Humans

From Chai et al. (2014):

“It has been known that many Cambodian people are infected with helminth parasites, such as soil-transmitted nematodes and FBT [fish borne trematodes] including *Opisthorchis viverrini* [Stich et al. 1999; Lee et al. 2002; Sinuon et al. 2003].”

“Especially, fishborne trematodes (FBT) provoke a remarkable morbidity among local people as well as a serious damage in aquaculture industry [WHO 2004; Chai et al. 2005; Andrews et al. 2008].”

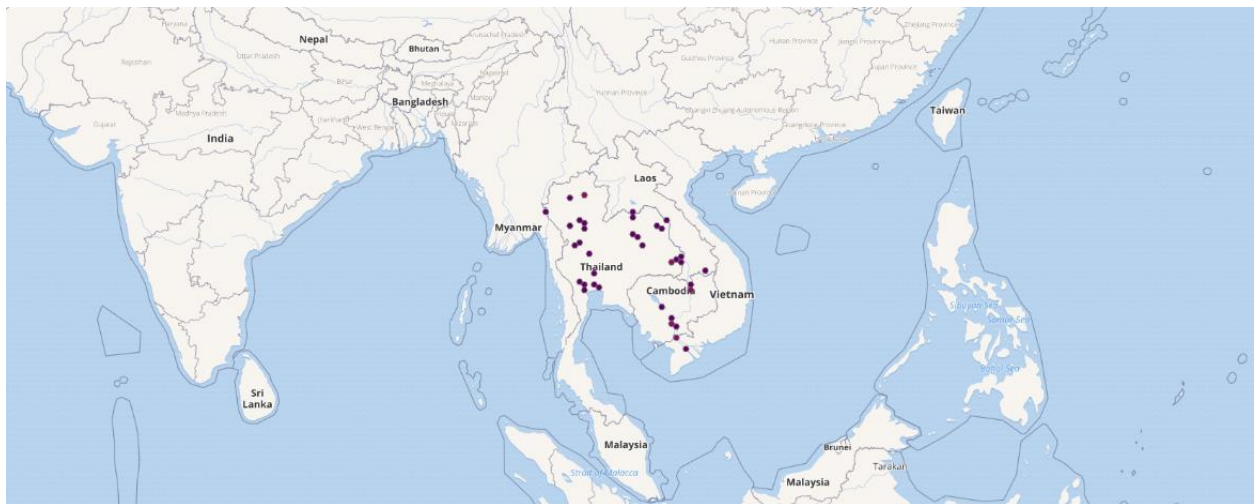
### 3 Impacts of Introductions

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No records of *Cirrhinus jullieni* introductions were found; therefore, there is no information on impacts of introduction.

### 4 Global Distribution

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**Figure 1.** Known global distribution of *Cirrhinus jullieni*. Locations are in Thailand, Laos, Cambodia, and Vietnam. Map from GBIF Secretariat (2018).

### 5 Distribution Within the United States

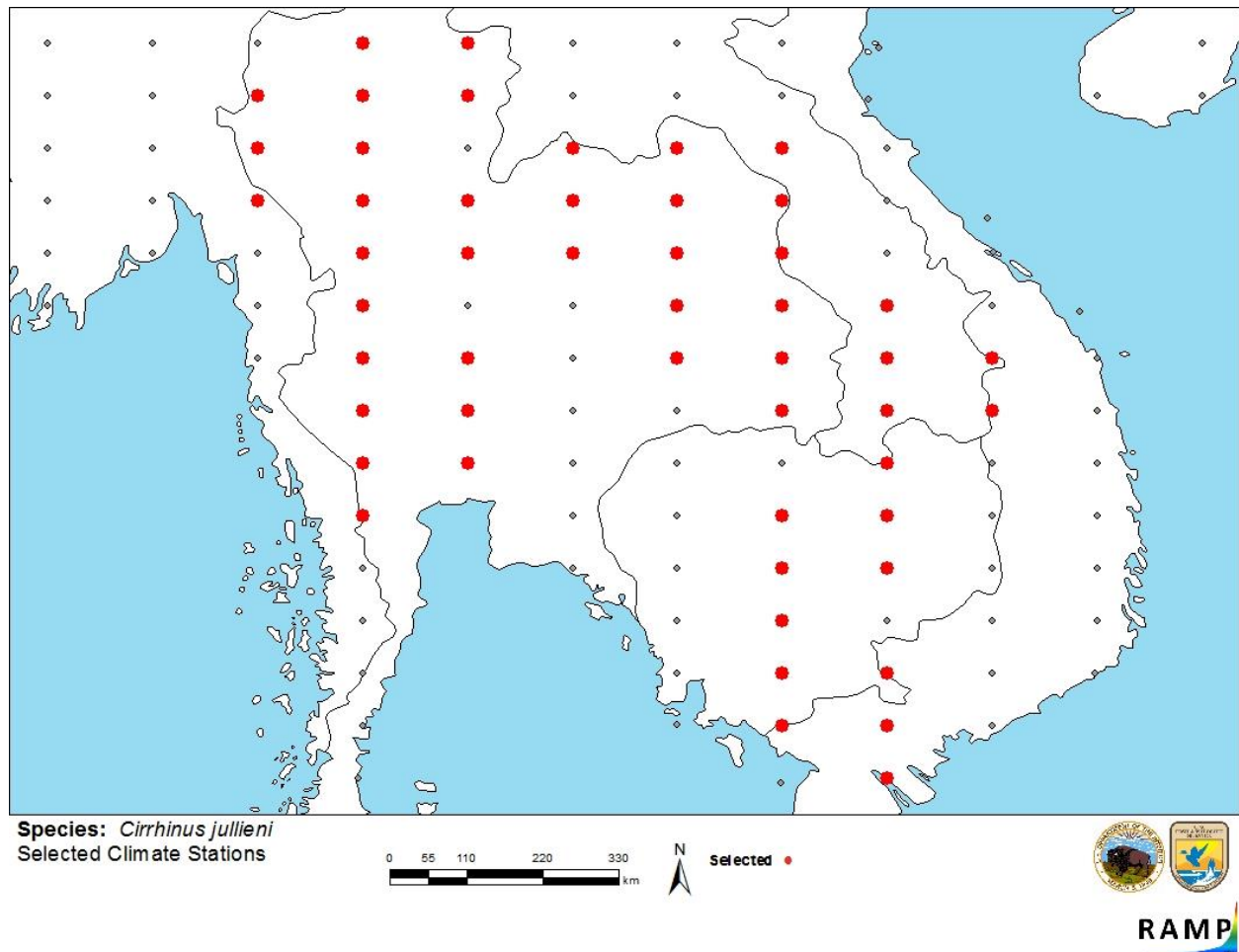
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No records of *Cirrhinus jullieni* in the wild in the United States were found.

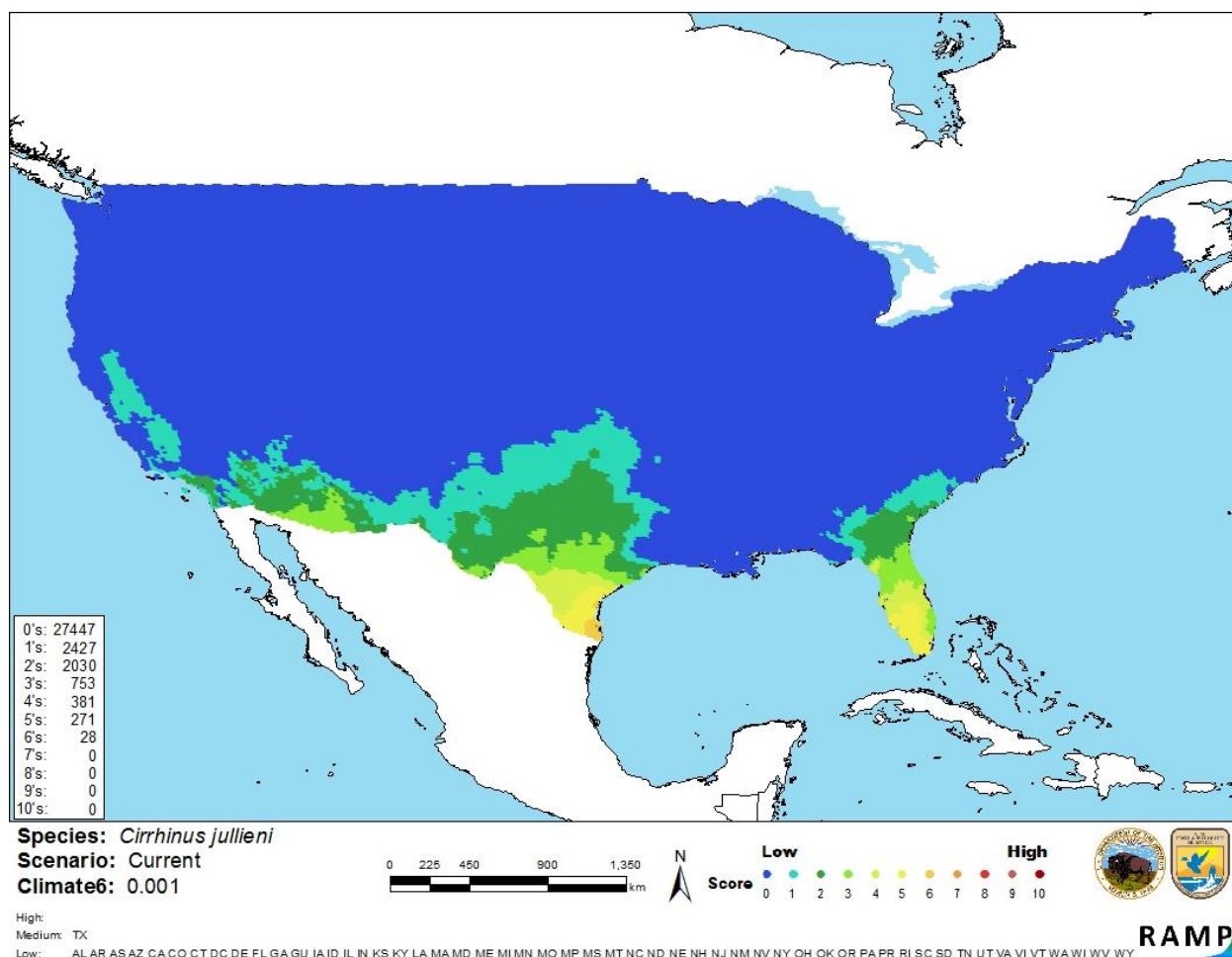
## 6 Climate Matching

### Summary of Climate Matching Analysis

The climate match for *Cirrhinus jullieni* was low for most of the contiguous United States. Southern Texas and southern Florida had medium climate matches. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for the contiguous United States was 0.001, low (scores between 0.000 and 0.005, inclusive, are classified as low). All States had low individual Climate 6 scores except for Texas, which had a medium individual Climate 6 score.



**Figure 2.** RAMP (Sanders et al. 2018) source map showing weather stations in Southeast Asia selected as source locations (red; Myanmar, Thailand, Laos, Cambodia, Vietnam) and non-source locations (gray) for *Cirrhinus jullieni* climate matching. Source locations from GBIF Secretariat (2018). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.



**Figure 3.** Map of RAMP (Sanders et al. 2018) climate matches for *Cirrhinus jullieni* in the contiguous United States based on source locations reported by GBIF Secretariat (2018). Counts of climate match scores are tabulated on the left. 0 = Lowest match, 10 = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
$\geq 0.103$	High

## 7 Certainty of Assessment

Peer-reviewed literature on the biology, ecology, and distribution associated with *Cirrhinus jullieni* as well as information on its potential invasiveness is limited. No records of introductions were found so there is no information on impacts of introductions. The certainty of assessment is low.

## 8 Risk Assessment

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### Summary of Risk to the Contiguous United States

*Cirrhinus jullieni* is a small species of cyprinid native to rivers in Southeast Asia. *C. jullieni* is used as a food fish, particularly in Cambodia. This species is also a host for various parasites, some of which can be harmful to human health if contracted by eating raw fish. *C. jullieni* can be susceptible to epizootic ulcerative syndrome, an OIE-reportable disease. The history of invasiveness is uncertain. No records of introductions were found and therefore, there is no information on impacts of introduction to evaluate. The climate match was low. Most of the contiguous United States had low climate matches, except for areas of medium match in southern Texas and Florida. The certainty of assessment is low. The overall risk assessment category for *Cirrhinus jullieni* is uncertain.

### Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Low**
- **Remarks/Important additional information:** *Cirrhinus jullieni* is susceptible to epizootic ulcerative syndrome.
- **Overall Risk Assessment Category: Uncertain**

## 9 References

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**Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.**

- Boonchot, K., and C. Wongsawad. 2005. A survey of helminths in Cyprinoid fish from the Mae Ngad Somboonchon Reservoir, Chiang Mai Province, Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health* 36(1):103–107.
- Boonyaratpalin, S. 1989. Bacterial pathogens involved in the epizootic ulcerative syndrome of fish in Southeast Asia. *Journal of Aquatic Animal Health* 1:272–276.
- Chai, J.-Y., W.-M. Sohn, B.-K. Na, T.-S. Yong, K. S. Eom, C.-H. Yoon, E.-H. Hoang, H.-G. Jeoung, and D. Socheat. 2014. Zoonotic trematode metacercariae in fish from Phnom Penh and Pursat, Cambodia. *Korean Journal of Parasitology* 52(1):35–40.
- de Graaf, G. J., and N. D. Chinh. 1992. Floodplain fisheries in the southern provinces of Vietnam. Ministry of Fisheries, Annual Report 9, Hanoi, Vietnam.
- Fricke, R., W. N. Eschmeyer, and R. van der Laan, editors. 2018. Catalog of fishes: genera, species, references. Available: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (November 2018).



- Froese, R., and D. Pauly, editors. 2018a. *Cirrhinus jullieni* Sauvage, 1878. FishBase. Available: <http://www.fishbase.org/summary/Cirrhinus-jullieni.html>. (November 2018).
- Froese, R., and D. Pauly, editors. 2018b. *Cirrhinus jullieni*. In World Register of Marine Species. Available: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=280192>. (November 2018).
- GBIF Secretariat. 2018. GBIF backbone taxonomy: *Cirrhinus jullieni* Sauvage, 1878. Global Biodiversity Information Facility, Copenhagen. Available: <https://www.gbif.org/species/5205979>. (November 2018).
- OIE (World Organisation for Animal Health). 2018. OIE-listed diseases, infections and infestations in force in 2019. Available: <http://www.oie.int/animal-health-in-the-world/oie-listed-diseases-2018/>. (November 2018).
- Sanders, S., C. Castiglione, and M. Hoff. 2018. Risk assessment mapping program: RAMP, version 3.1. U.S. Fish and Wildlife Service.

## 10 References Quoted But Not Accessed

**Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.**

- Andrews, R. H., P. Sithithawarn, and T. N. Petney. 2008. *Opisthorchis viverrini*: an underestimated parasite in world health. Trends in Parasitology 24:497–501.
- Chai, J. Y., K. D. Murrell, and A. J. Lymbery. 2005. Fish-borne parasitic zoonoses: status and issues. International Journal of Parasitology 35:1233–1254.
- Cuvier, G., and A. Valenciennes. 1844. Histoire naturelle des poissons. Tome dix-septième. Suite du livre dix-huitième. Cyprinoïdes 17:487-519.
- Eschmeyer, W.N., editor. 1999. Catalog of fishes. Updated database version of November 1999. Catalog databases as made available to FishBase in November 1999.
- Kottelat, M. 1985. Fresh-water fishes of Kampuchea. Hydrobiologia 121:249–279.
- Kottelat, M. 2001. Fishes of Laos. WHT Publications, Colombo 5, Sri Lanka.
- Lee, K. J., Y. T. Bae, D. H. Kim, Y. K. Deung, Y. S. Ryang, H. J. Kim, K. I. Im, and T. S. Yong. Status of intestinal parasites infection among primary school children in Kampongcham, Cambodia. Korean Journal of Parasitology 40:153–155.
- Monkolprasit, S., S. Sontirat, S. Vimollohakarn, and T. Songsirikul. 1997. Checklist of fishes in Thailand. Office of Environmental Policy and Planning, Bangkok, Thailand.

- Purivirojkul, W. 1999. Parasite of Pla Soi Khao *Cirrhinus jullieni* Sauvage from Suphan Buri River, Changwat Suphan Buri. Master's thesis. Kasetsart University, Bangkok, Thailand.
- Rainboth, W. J. 1996. Fishes of the Cambodian Mekong. FAO Species Identification Field Guide for Fishery Purposes. FAO, Rome.
- Riede, K. 2004. Global register of migratory species - from global to regional scales. Final Report, R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn.
- Roberts, T. R. 1997. Systematic revision of the tropical Asian labeon cyprinid fish genus *Cirrhinus*, with descriptions of new species and biological observations on *C. lobatus*. Natural History Bulletin of Siam Society 45:171–203.
- Roberts, T. R., and T. J. Warren. 1994. Observations of fishes and fisheries in southern Laos and northeastern Cambodia, October 1993-February 1994. Natural History Bulletin of Siam Society 42:87–115.
- Sauvage, H.-E. 1878. Note sur quelques poissons d'espèces nouvelles provenant des eaux douces de l'Indo-Chine. Bulletin de la Société philomathique de Paris 2:233-242.
- Sinuon, M., M. T. Anantaphruti, and D. Socheat. 2003. Intestinal helminthic infections in school children in Cambodia. Southeast Asian Journal of Tropical Medicine and Public Health 34:254–258.
- Stich, A. H., S. Biays, P. Odermatt, C. Men, C. Saem, K. Sokha, C. S. Ly, P. Legros, M. Philips, L. D. Lormand, and M. Tanner. 1999. Foci of *Schistosoma mekongi*, northern Cambodia: II. Distribution of infection and morbidity. Tropical Medicine and International Health 4:674–685.
- WHO. 2004. Report of Joint WHO/FAO Workshop on Food-borne trematode infections in Asia. November 2002; Ha Noi, Vietnam. World Health Organization, WPRO.