

Spot Pangasius (*Pangasius larnaudii*)

Ecological Risk Screening Summary

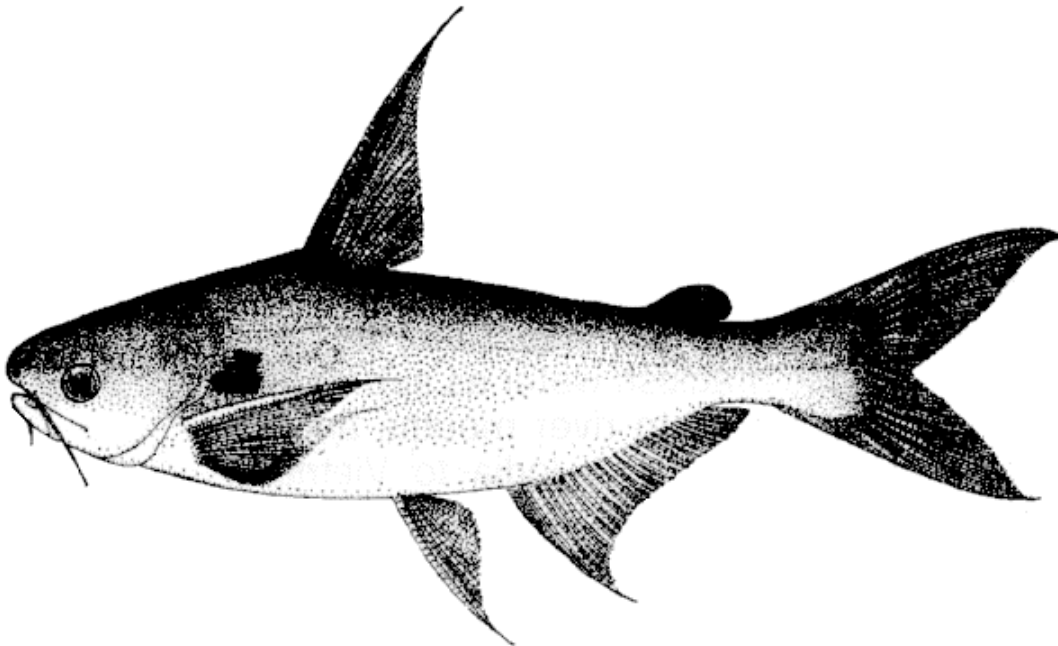
U.S. Fish & Wildlife Service, April 2012

Revised, August 2018

Web Version, 5/1/2020

Organism Type: Fish

Overall Risk Assessment Category: Uncertain



FAO

Image: FAO. Licensed under Creative Commons BY-NC 3.0. Available:
<http://www.fishbase.se/photos/PicturesSummary.php?StartRow=3&ID=12000&what=species&TotalRec=5>. (August 22, 2018).

1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2018):

“Asia: Mekong and Chao Phraya basins [Myanmar, Cambodia, Laos, Thailand, Vietnam].”

“[In Cambodia:] Occurs in the Mekong basin [Rainboth 1996; Kottelat 1998]. Found below the Khone Falls to the Tonle Sap River, the Great Lake [Hill and Hill 1994].”

“[In Laos:] Occurs in the Mekong tributary, the lower Xe Bangfai basin [Kottelat 1998]. Found in the Khone Falls [Hill and Hill 1994]. Collected from Tha Ngon in the Mekong basin [Taki 1974] and from Ban Hang Khone, a village on an island in the middle of the mainstream Mekong River just below the Great Khone Waterfalls in Khong District, Champasak Province [Baird 1998]. Enters flooded forest in Ban Hang Khone, Don Khone, just below the great waterfalls at Lee Pee [Roberts 1993].”

“[In Thailand:] Occurs in the Mekong and Chao Phraya basins [Kottelat 1998] and Maeklong basin [Vidthayanon et al. 1997]. Reported from Phra Nakhon Si Ayutthaya, Chai Nat, Ubon Ratchathani, and Nong Khai [Monkolprasit et al. 1997].”

“[In Vietnam:] Occurs in the Mekong basin [Kottelat 1998].”

Status in the United States

No records of *Pangasius larnaudii* in the wild or in trade in the United States were found.

Means of Introductions in the United States

No records of *Pangasius larnaudii* in the wild in the United States were found.

Remarks

Sreeputhorn et al. (2017) report hybrids of *Pangasius larnaudii* and *Pangasianodon hypophthalmus*.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2018), *Pangasius larnaudii* Bocourt 1866 is the valid name for this species. It is also the original name.

From ITIS (2018):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Siluriformes
Family Pangasiidae

Genus *Pangasius*
Species *Pangasius larnaudii* Bocourt, 1866

Size, Weight, and Age Range

From Froese and Pauly (2018):

“Max length : 130 cm SL male/unsexed; [Baird et al. 1999]; max. published weight: 4.6 kg [Machacek 2007]”

Environment

From Froese and Pauly (2018):

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

Climate

From Froese and Pauly (2018):

“Tropical; 20°N - 10°N”

Distribution Outside the United States

Native

From Froese and Pauly (2018):

“Asia: Mekong and Chao Phraya basins [Myanmar, Cambodia, Laos, Thailand, Vietnam].”

“[In Cambodia:] Occurs in the Mekong basin [Rainboth 1996; Kottelat 1998]. Found below the Khone Falls to the Tonle Sap River, the Great Lake [Hill and Hill 1994].”

“[In Laos:] Occurs in the Mekong tributary, the lower Xe Bangfai basin [Kottelat 1998]. Found in the Khone Falls [Hill and Hill 1994]. Collected from Tha Ngon in the Mekong basin [Taki 1974] and from Ban Hang Khone, a village on an island in the middle of the mainstream Mekong River just below the Great Khone Waterfalls in Khong District, Champasak Province [Baird 1998]. Enters flooded forest in Ban Hang Khone, Don Khone, just below the great waterfalls at Lee Pee [Roberts 1993].”

“[In Thailand:] Occurs in the Mekong and Chao Phraya basins [Kottelat 1998] and Maeklong basin [Vidthayanon et al. 1997]. Reported from Phra Nakhon Si Ayutthaya, Chai Nat, Ubon Ratchathani, and Nong Khai [Monkolprasit et al. 1997].”

“[In Vietnam:] Occurs in the Mekong basin [Kottelat 1998].”

Introduced

No records of *Pangasius larnaudii* introductions were found.

Means of Introduction Outside the United States

No records of *Pangasius larnaudii* introductions were found.

Short Description

From Froese and Pauly (2018):

“Anal soft rays: 28 - 32. A large black spot above the base of the pectoral fin and a black longitudinal stripe along each caudal lobe [Kottelat 1998]. Dorsal and pectoral fins with a strong spine and a long, filamentous rays [Taki 1974]. With 13-17 gill rakers in first arch [Rainboth 1996].”

From Roberts and Vidthayanon (1991):

“A moderately broad, rounded head is characteristic of *P. larnaudii*, [...]”

“In *P. larnaudii* and *P. hypophthalmus*, the palatine and vomerine plates of each side are more or less perfectly joined into a single curved toothplate, but the vomerine portions of each side are more or less widely separated at the midline.”

“Several species have submarginal dark stripes on the caudal fin lobes, e.g. *P. larnaudii* [...]”

Biology

From Froese and Pauly (2018):

“Occurs in medium to large-sized rivers [Taki 1978]. Inhabits deep pools in the river [Sokheng et al. 1999]. Found in rapids and riffle [Singhanouvong et al. 1996]. Enters flooded forest [Roberts 1993]. Artificially reared fry of 3.5 mm at 12 hrs., 8.4 mm at 4 days, 8.8 mm at 8 days and 23 mm at 18 days. Larval teeth present in 12 hr and 4 day larvae. Feeds on shrimps, small fishes, gastropods and plants [Ukkatawewat 2005]. Migrates into floodplains and spawns at the beginning of the flood season [Rainboth 1996].”

“Feeds heavily on fruits and enters the flooded forest in high water [Roberts 1993].”

“Undertakes upstream migration during the wet season in May-July through Hoo Som Yai [Laos] at the Great Fault Line on the Mekong River, Champassack Province [Singhanouvong et al. 1996].”

“Upstream migration [in Myanmar] during May to September in Khone Falls, downstream migration at Chieng Khan, Loei province from May to September [Chhea 2002].”

“Below the Khone Falls from Dong Thap Province [Vietnam] to the Khone Falls, it migrates upstream at the start of the dry the season, triggered by the receding water levels [Sokheng et al. 1999].”

Human Uses

From Froese and Pauly (2018):

“Fisheries: commercial; aquaculture: commercial”

“Reared in ponds as well as in weirs around the Great Lake [in Cambodia] [Cambodian National Mekong Committee 1998]. May be put on ice around the Great Lake [in Cambodia] for shipment to Thailand [Rainboth 1996].”

From Roberts and Vidthayanon (1991):

“According to Bocourt (1866:16-17), a century ago *P. larnaudii* "was not sold in the markets of Bangkok because it was too expensive; also, it was reserved for consumption by important people." He also reported that "its flesh is extremely delicate and succulent; it is raised and fattened at Ayuttaya, in watercourses closed off by bamboo grill.”

Diseases

No records of OIE-reportable diseases (OIE 2020) were found.

Scholz and de Chambrier (2012), list *Pangasius larnaudii* as a host of *Pangasiocestus romani*.

According to Tripathi et al. (2014), Lerssutthichawal et al. (1999) reported *P. larnaudii* as a host of *Thaparodleidus caecus*.

Arthur and Te (2006), report *P. larnaudii* as a host of *Balantidium* sp., *Trichodina nigra*, *Tripartiella bulbosa*, *Tripartiella obtusa*, *Ichthyonyctus baueri*, *I. pangasia*, unidentified protozoa, *Henneguya* sp., *Thaparocleidus* sp., *Spectatus* sp., *Philometra* sp., and *Ergasilus* sp.

Threat to Humans

From Froese and Pauly (2018):

“Harmless”

3 Impacts of Introductions

No records of *Pangasius larnaudii* introductions were found; therefore, there is no information on impacts of introductions.

4 History of Invasiveness

No records of *Pangasius larnaudii* introductions were found; therefore, the history of invasiveness is no known nonnative population.

5 Global Distribution



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

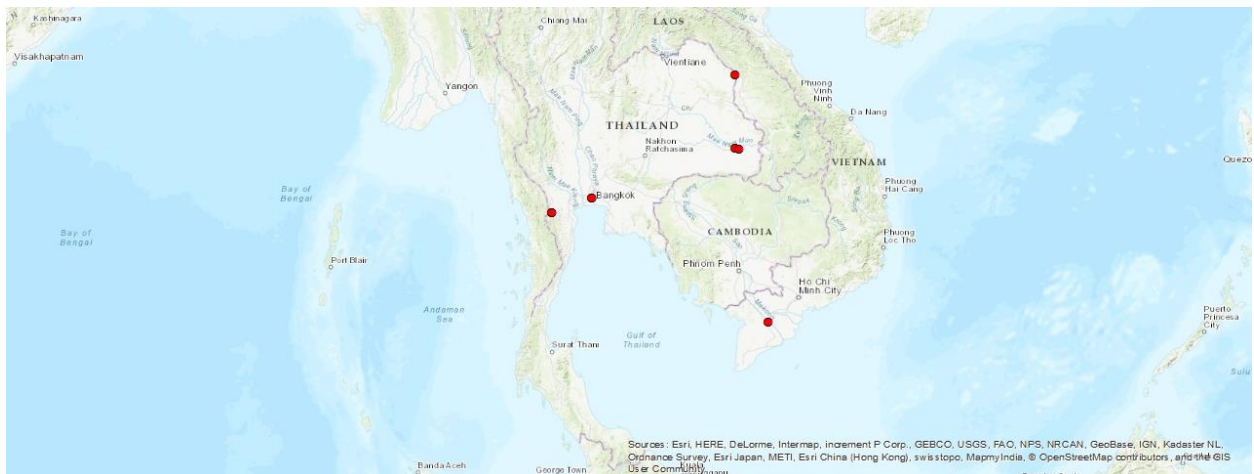


Figure 2. Additional known distribution of *Pangasius larnaudii*. Locations are in Thailand, Laos, and Vietnam. Map created with data from Froese and Pauly (2018), basemap from ArcGIS® by Esri (www.esri.com).

6 Distribution Within the United States

No records of *Pangasius larnaudii* in the wild in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Pangasius larnaudii* was low for most of the contiguous United States. There were areas of medium match in southern Texas and Florida. The Climate 6 score (Sanders et al. 2018; 16 climate variables; Euclidean distance) for contiguous United States was 0.001, low (scores below 0.005 are considered low). All States had low individual climate scores except for Texas, which had a medium individual climate score.

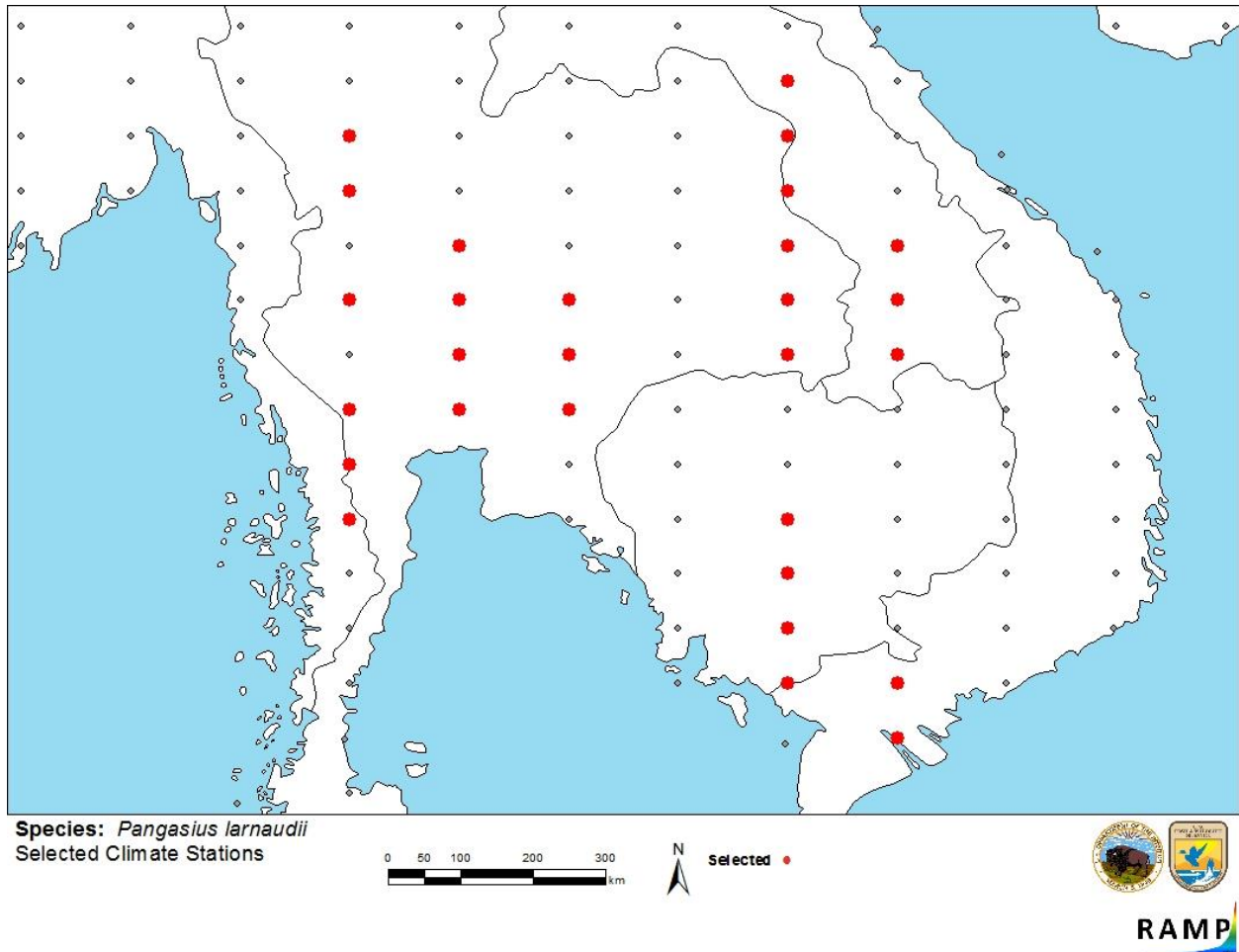


Figure 3. RAMP (Sanders et al. 2018) source map showing weather stations in Southeast Asia selected as source locations (red; Myanmar, Thailand, Laos, Cambodia, Vietnam) and non-source locations (gray) for *Pangasius larnaudii* climate matching. Source locations from Froese and Pauly (2018) and GBIF 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.

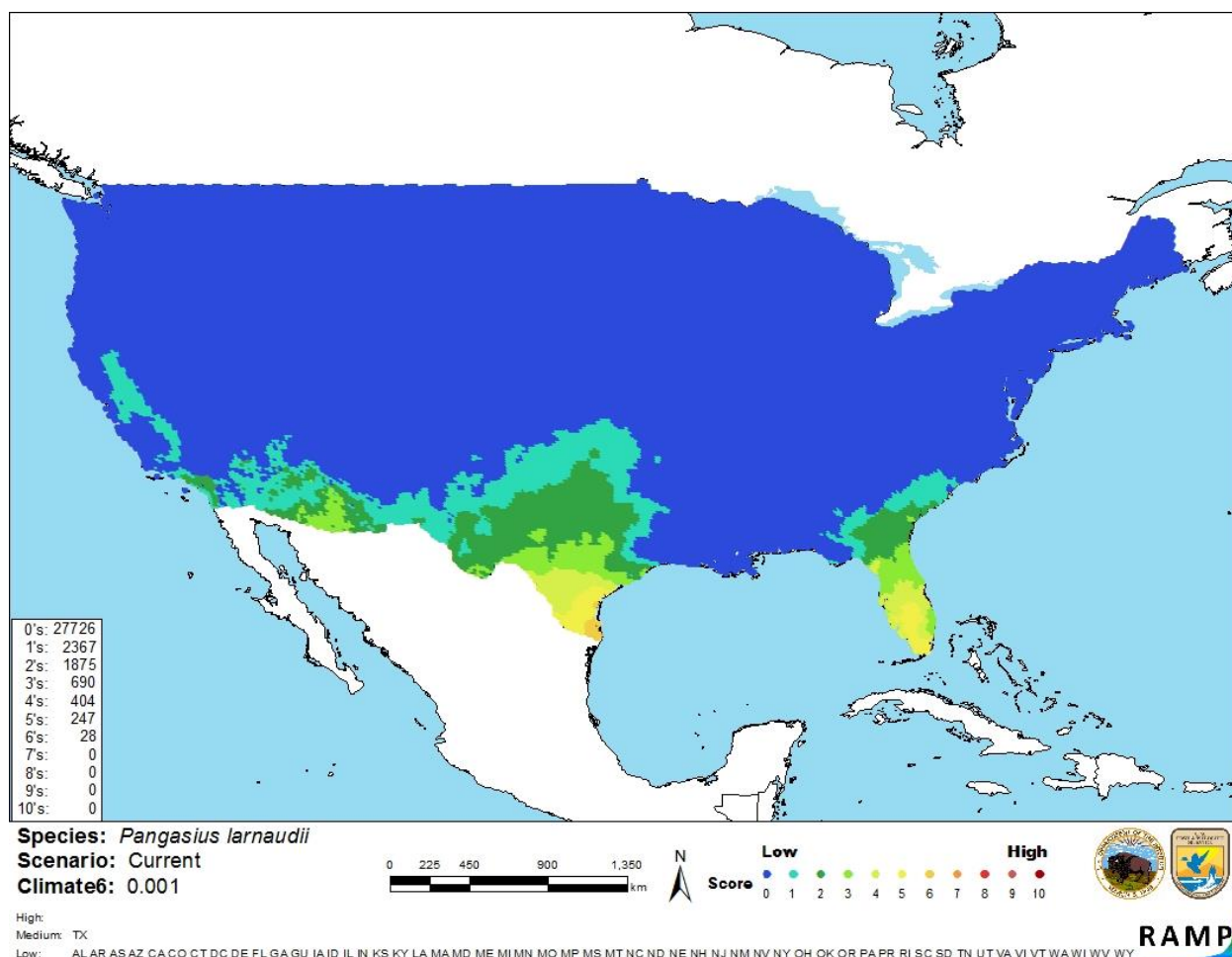


Figure 4. Map of RAMP (Sanders et al. 2018) climate matches for *Pangasius larnaudii* in the contiguous United States based on source locations reported by Froese and Pauly (2018) and GBIF Secretariat (2018). Counts of climate match scores are tabulated on the left. 0/Blue = Lowest match, 10/Red = Highest match.

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

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

8 Certainty of Assessment

The certainty of assessment for *Pangasius larnaudii* is medium. There is basic information available regarding the biology and distribution of this species. No records of introduction were found, so there is no information on impacts of introduction to evaluate.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Spot Pangasius (*Pangasius larnaudii*) is a species of catfish native to the Mekong and Chao Phraya river basins in Myanmar, Cambodia, Laos, Thailand, and Vietnam. This species migrates up and down the Mekong with the wet and dry seasons. *P. larnaudii* is used, along with hybrids, in aquaculture in the native range, but no records of aquaculture use outside of Southeast Asia were found. This species is not found in trade. The history of invasiveness is no known nonnative populations. No records of introduction were found and, therefore, there is no information on impacts of introductions. The climate match is low. Only southern Texas and Florida had areas of medium climate match. The certainty of assessment is medium. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): Low**
- **Certainty of Assessment (Sec. 8): Medium**
- **Remarks/Important additional information: No additional information**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

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11 Literature Cited in Quoted Material

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.

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