

# Native species in Kampar Kanan River, Riau Province Indonesia

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### Abstract

The present study deals with fish biodiversity undertaken during period January-2014 to July-2014 to census and commercially important fishes in the Kampar Kanan River. The present paper deals with the variety and abundance of freshwater fishes in Kampar Kanan River at Kampar Regency Riau Province Indonesia. The results of present investigation reveal the occurrence of 36 fish species belonging to 7 orders, 15 families and 23 genera. Among the collected species, order Cypriniformes was most dominant constituting 36.11% followed by order Perciformes constituting 27.78%, order Siluriformes 25%, Tetraodontiformes, Pleuronectiformes, Osteoglossiformes and Cyprinodontiformes constituting 2.77% of the total fish species. Species in the vulnerable status is *Hemibagrus wyckii*, *Pangasius pangasius*, *Chitala lopis*, *Channa pleurothalmus*.

**Keywords:** Fish biodiversity. Economic value. Nutritive Value. Kampar Kanan River.

### 1. Introduction

Biodiversity is one of the natural resources is a priority from World Summit on Sustainable Development *i.e* Water, Energy, Health, Agriculture and Biodiversity<sup>[1]</sup>. Indonesia is a country that has a high fish biodiversity includes the diversity of ecosystems, species and genetic. A total of 3000 species have been found in various waters and 1300 species found living in<sup>[2]</sup>. Biodiversity of fish in inland waters Riau Province are 260 species<sup>[3]</sup>. In general, species diversity has been decreased, in Kampar Kiri River found only 86 species<sup>[4]</sup>, Kampar Kanan River are 58 species<sup>[5]</sup>. Koto Panjang Reservoir are 26 species<sup>[6]</sup> and Siak River are 36 Species<sup>[7]</sup>.

Kampar Kanan River water flowing through the Lima Puluh Kota Regency West Sumatra Province and Kampar regency Riau Province. Since 1992 the region upstream of Kampar Kanan Koto Panjang reservoir constructed with extensive inundation 12,400 ha, water depths ranging from 73.5 to 85.0 m and has been used for hydropower plants with a capacity of 114 MW. Loss of habitat is the main threat to biodiversity of fish Indonesia<sup>[8, 9, 10]</sup>. In Kampar Kanan river a major threat to biodiversity of fish, among others damming rivers and sand mining in river water bodies<sup>[11]</sup> non-selective fishing, fish farming cages in the river and invasive alien species<sup>[6, 12, 13, 14]</sup> Extensification and intensification of oil palm plantations which have a negative impact on water quality of the river<sup>[15]</sup>, land use change, deforestation and sedimentation<sup>[16]</sup>. Each species of fish in Kampar Kanan River has significance as an economic resource for the community which live in rural areas. Therefore, identification of native species in the Kampar Kanan River for domestication very important to know.

### 2. Materials and Methods

Fishes were collected from Kampar Kanan River upstream areas (Fig 1): at Kouk village (0° 19' 23.44" N and 100° 56' 40.05" E), Air Tiris village (0° 21' 24.77" N and 101° 06' 04.90" E and Tarantang village (0° 21' 05.32" N and 101° 18' 43.96" E) with the help of local fishermen using different type of nets namely gill nets, cast nets, trapsnets and fishing pole. Immediately photographs were taken with help of digital camera.

Inter



Fishes were brought to laboratory and preserved in 10% formalin solution in separate specimen jars according to the size of species. Small fishes were directly placed in the 10% formalin solution. While large fishes were given an incision in their abdomen and preserved. The Meristic and morphometric characters collected fishes were measured and identified up to the species level, with the help of standard keys and books [17, 18, 19, 20].

### 3. Results

The results showed that the area was rich in fish biodiversity. Fishes belonging to seven orders and fifteen families were collected during course of the study period. Many collected fishes having economic importance sold after collection in the local fish market.

In the present fish biodiversity study 36 species of 23 different genera 15 families and 7 orders were recorded from the Kampar Kanan River number of catches carried out during January to July 2014. The members of Order Cypriniformes were dominated by 13 species followed by Perciformes ten species, Siluriformes nine species, Tetraodontiformes, Pleuronectiformes and Osteoglossiformes with one species each.

15 fish families represented by 36 fish species, Family Cyprinidae was dominant group with 13 species in the assemblage composition in which *Barbodes schwanifeldi*, *Osteochilus hasseltii*, *Osteochilus pleurotaenia*, *Rasbora argyrotaenia* were found most abundant. *Cyclocheilichthys apogon*, *Hampala macrolepidota*, *Osteochilus schlegeli*, *Osteochilus vitatus*, *Thynnichthys polilepis* were found abundant. *Crossocheilus oblongus*, *Crossocheilus langei*, *Puntioplites bulu* were found less abundant. Followed by Family Bagridae in which *Hemibagrus nemurus* was found abundant. *Mystus negrisesep*, *Mystus micracanthus* were found less abundant and *Hemibagrus wyckii* was found vulnerable. Followed by family *Kryopterus palembangensis*, *Wallago leeri* were found abundant and *Kryopterus schweidts* were found less abundant. Followed by Family Channidae in which *Channa striatus* was found most abundant. *Channa micropeltes*, *Channa lucius* were found less abundant and *Channa pleurothalmus* was found rare. Followed by Family Pangasidae in which *Pangasius polyranodon* were found less abundant, *Pangasius pangasius* was found rare. Followed Family Tetraodontidae in which *Tetraodon palembangensis* were found less abundant. Family in which *Anabas testudineus* were found most abundant. Family Belontiidae in which *Thrichogaster trichopterus* were found most abundant. Family Chandidae in which *Parambassis wolfii* were found less abundant. Family Helostomatidae in which *Helostoma temmincki* were found most abundant. Family Mastacembelidae in which *Mastacembelus unicolor* were found less abundant. Family Pristolepididae in which *Pristilepis grooti* were found abundant. Family Notopteridae in which

*Chitala lopsis* was found rare. Scientific name and economic values shown in Table 1. From 36 species most be prioritized to do domestication is *Hemibagrus wyckii*, *Pangasius pangasius*, *Chitala lopsis*, *Puntioplites bulu*, *Osteochilus kalabau* because

the species has been threatened, among other causes due to sand mining in river water bodies, damming the river to be a reservoir that serves as Hydroelectric Power Plant, and fishing is not selective.

Thirty-six species were identified and recorded in the Kampar Kanan River. Among these order Cypriniformes was most dominant constituting 36.11% followed by order Perciformes

constituting 27.78%, order Siluformes constituting 25%, and orders Tetraodontiformes, Pleuronectiformes, Pleuronectiformes, Osteoglossiformes and Cyprinodontiformes constituting 2.77% of the total fish species showed in the (Fig 2). Furthermore, of the 36 species with status most abundant 22.22%, abundant 36.11%, less abundant 30.55% and vulnerable 11.11%.

**Table 1:** The native species and Economic value of fish in Kampar Kanan River during January 2014 to July 2014

| Order              | Family          | Genus and Species                  | Local name      | Economic value | Price/kg (USD) | Status |
|--------------------|-----------------|------------------------------------|-----------------|----------------|----------------|--------|
| Siluformes         | Bagridae        | <i>Hemibagrus nemurus</i>          | Baung           | FD             | 6.25           | ++     |
|                    |                 | <i>Hemibagrus wyckii</i>           | Geso            | FD             | 13.33          | -      |
|                    |                 | <i>Mystus nigriceps</i>            | Ingir-ingir     | FD             | 2.91           | +      |
|                    |                 | <i>Mystus micracanthus</i>         | Baung pisang    | FD             | 3.33           | +      |
|                    | Pangasidae      | <i>Pangasius pangasius</i>         | Patin           | FD             | 10             | -      |
|                    |                 | <i>Pangasius polyranodon</i>       | Juaro           | FD             | 4.16           | +      |
|                    | Siluridae       | <i>Ompok hypophthalmus</i>         | Selais          | FD             | 5              | ++     |
|                    |                 | <i>Kryptopterus schilbeides</i>    | Selais          | FD             | 4.16           | +      |
|                    |                 | <i>Wallago leeri</i>               | Tapah           | FD             | 6.66           | ++     |
| Tetraodontiformes  | Tetraodontidae  | <i>Tetraodon Palembangensis</i>    | Buntal          | FD, MD         | 2.91           | ++     |
| Perciformes        | Anabantidae     | <i>Anabas testudineus</i>          | Puyu            | FD, LV         | 2.91           | +++    |
|                    | Belontiidae     | <i>Thrichogaster trichopterus</i>  | Sepat           | FD, OF         | 2.91           | +++    |
|                    | Chandidae       | <i>Parambassis wolfii</i>          | Sipongkah       | FD             | 2.08           | +      |
|                    | Channidae       | <i>Channa lucius</i>               | Bujuk           | FD             | 3.33           | ++     |
|                    |                 | <i>Channa striata</i>              | Gabus           | FD, MD         | 3.33           | +++    |
|                    |                 | <i>Channa micropeltes</i>          | Toman           | FD, OF         | 4.16           | ++     |
|                    |                 | <i>Channa pleurotholmus</i>        | Serandang       | OF             | 3.33           | -      |
|                    | Helostomatidae  | <i>Helostoma temmincki</i>         | Tuakang         | FD             | 2.91           | +++    |
|                    | Mastacembelidae | <i>Mastacembelus unicolor</i>      | Tilan           | FD, OF         | 3.33           | +      |
|                    | Pristolepididae | <i>Pristilepis grooti</i>          | Katung          | FD             | 2.91           | ++     |
| Pleuronectiformes  | Cygnolossidae   | <i>Cygnolossus microlepis</i>      | Lidah-lidah     | FD             | 2.08           | ++     |
| Osteoglossiformes  | Notopteridae    | <i>Chitala lopsis</i>              | Belida          | FD, OF         | 7.5            | -      |
| Cyprinodontiformes | Hemiramphidae   | <i>Hemiramphus chrysopunctatus</i> | Julung-julung   | FD, BT         | 3.33           | +      |
| Cypriniformes      | Cyprinidae      | <i>Barbodes schwanifeldi</i>       | Kapiek          | FD, OF         | 2.91           | +++    |
|                    |                 | <i>Crossocheilus oblongus</i>      | Selimang batu   | OF             | 5              | +      |
|                    |                 | <i>Crossocheilus langei</i>        | Selimang batang | OF             | 5              | +      |
|                    |                 | <i>Cyclocheilichthys apogon</i>    | Siban           | FD             | 2.08           | ++     |
|                    |                 | <i>Hampala macrolepidota</i>       | Barau           | FD             | 2.91           | ++     |
|                    |                 | <i>Osteochilus hasseltii</i>       | Paweh           | FD, BA         | 2.08           | +++    |
|                    |                 | <i>Osteochilus kalabau</i>         | Kalabau         | FD             | 3.33           | +      |
|                    |                 | <i>Osteochilus schlegeli</i>       | Siburuk         | FD             | 2.08           | ++     |
|                    |                 | <i>Osteochilus vitatus</i>         | Asang           | FD, OF         | 2.5            | ++     |
|                    |                 | <i>Osteochilus pleurotaenia</i>    | Lelan           | FD, OF         | 2.08           | +++    |
|                    |                 | <i>Puntioplites bulu</i>           | Tabingalan      | FD             | 6.25           | +      |
|                    |                 | <i>Rasbora argyrotaenia</i>        | Bada            | FD, B          | 5              | +++    |
|                    |                 | <i>Thynnichthys pollepis</i>       | Motan           | FD, BA         | 3.33           | ++     |

+++ Most abundant, ++ Abundant, + Less abundant, - Vulnerable, 1 USD = 12.000 IDR

- 1) FD - Food Fish, 4) MD-Medicinal Value  
 2) LV-Larvicious fish, 5) OF - Ornamental fishes 3) BT= Bait,  
 6) BA -Biological agents

#### 4. Discussion

The dominant native species found in the Kampar Kanan River is the family Cyprinidae 13 species, followed by the order constituting Perciformes 10 species and Siluiformes 9 species. [5] found the order Cypriniformes in Kampar Kanan river as many as 24 species (43.10%), including the introduction of fish ie *Cyprinus carpio*, *Leptobarbus hoeveni*, *Oreochromis niloticus* and *Osphronemus gourami*. In the Kampar Kiri River is also dominated by the order Cypriniformes as many as 35 species (40.7%) [4]. According [20] the species of the family Cyprinidae is the largest freshwater fish species worldwide; except Australia, Madagascar, New Zealand and South America. In Koilsagar reservoir in Mahbubnagar district

Telangana India found order Cypriniformes 13 species Regency (43.33%) [21], in Betwa River in Madhya Pradesh, India order Cypriniformes 29 species (56.86%) [22] and in River Narmada, Western Zone 28 species (54.90%) [23].

#### 5. Acknowledgments

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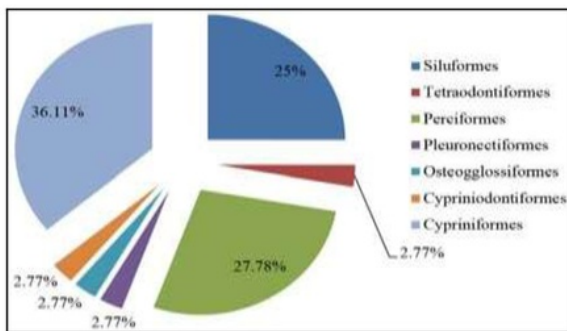


Fig 2: Order wise fish composition at Kampar Kanan River Kampar

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