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Fishery Studies of Ribb River, Lake Tana Basin, Ethiopia

Final Report

Presented to the World Bank-financed Ethiopian-Nile Irrigation and Drainage Project Coordination Office, Ministry of Water Resources

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BY:

Abebe Getahun (PhD) ------Lead Aquatic Ecologist

Eshete Dejen (PhD) -------Aquatic Ecologist

Wassie Anteneh (MSc) -------Aquatic Ecologist

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Acronyms:

ACU:	*Labeobarbus acutrostris*
BA:	Barya River (tributary of Ribb River)
BAFLRC:	Bahir Dar Fish and other Living Resources Research Center
BRE:	*Labeobarbus brevicephalus*
CH:	Chibirna River (tributary of Ribb River)
CPUE:	Catch Per Unit Effort
CRA:	*Labeobarbus crassibarbis*
DEG:	*Labeobarbus degeni*
ETB:	Ethiopian Birr
FL:	Fork Length
FPME:	Fish Production and Marketing Enterprise
GAR:	*Garra* sp.
GON:	*Labeobarbus gorgorensis*
HA:	Hamus River (tributary of Ribb River)
INT:	*Labeobarbus intermedius*
KI	Kirarign River (tributary of Ribb River)
KE:	Keha River (tributary of Ribb River)
LON:	*Labeobarbus longissimus*
LTFRDP:	Lake Tana Fisheries Resource Development Program
MAC:	*Labeobarbus macrolepidotus*
MC1:	Main Ribb River at the Bahir Dar-Gondar Bridge near Woreta town
MC2:	Main Ribb River at the old Broken Bridge (on the old road from Zeha to Debretabor)
MC3:	Main Ribb River at the dam site
MC4:	Main Ribb River above the junction with Hamus River
MC5:	Main Ribb River above the junction with Melo River
ME:	Melo River (tributary of Ribb River)
MEG:	*Labeobarbus megastoma*
NED:	*Labeobarbus nedgia*
PLA:	*Labeobarbus platydorsus*
RM:	River mouth
SH:	Shini River (tributary of Ribb River)
SUR:	*Labeobarbus surkis*
TIL:	*Oreochromis niloticus*

TRU: *Labeobarbus truttiformis*

TSA: *Labeobarbus tsanensis*

TW: Total Weight

VAR: *Varicorhinus beso*

EXECUTIVE SUMMARY

A dam is planned to be constructed on the Ribb River some 50 km north east of Lake Tana. This study was designed to investigate the dam's effect on fishes of *Labeobarbus* spp. that migrate from Lake Tana to Ribb River and its tributaries for spawning. 13 sampling sites were identified at the river mouth, on the main Ribb River and its tributaries below and above the dam site. Fishes were collected from each sampling site in three separate field trips during the main rainy season (end of July to beginning of November). A total of 2457 fish specimens (1287 females, 1143 males and 27 unidentified specimens) were collected using gill nets of different mesh sizes (6, 8, 10, and 12 cm stretched mesh size), hooks and lines, fykes, cast nets, traps and scoop nets and fishes were also purchased from the local fishers for biological investigation.

Eighteen species belonging to five genera and three families were represented in the catch. *L. intermedius, L. brevicephalus, L. megastoma, L. truttiformis* and *L. tsanensis* were the most abundant species migrating to Ribb River and its tributaries. These *Labeobarbus* species were found to aggregate at the Ribb River mouth before the onset of migration and they are found to migrate to all the tributaries and up to the most distant site sampled (Main channel above the junction with Melo River located some 15 km above the dam).

Most of the *Labeobarbus* specimens collected during the study period were having gonads that were mature and running; from the total of 2075 *Labeobarbus* specimens, 887 specimens were mature, 835 specimens were running and 53 were spent. There is no evidence for specificity of habitat at which each species of *Labeobarbus* spawn and hence spatial segregation is out-ruled. However, there is evidence that they segregate temporally except in the case of *L. intermedius*. Among the dominant species, *L. megastoma* was the first to aggregate at the river mouth and run to upstream followed by *L. truttiformis* and *L. tsanensis*. The last to aggregate and migrate upstream is *L. brevicephalus*.

All the tributaries and the upstream Ribb main channel can be considered as suitable breeding habitats for *Labeobarbus* spp. The total estimated length of spawning habitat along the main Ribb River and its tributaries is 351.5 km. The area below the dam contributes 57.3 % while the spawning habitat above the dam contributes 42.7 % of

the total. Moreover it has to be noted that higher relative abundance of *Labeobarbus* spp. was observed from sampling sites below the dam than above the dam.

It has been estimated that 48 % of the fish production from Lake Tana that landed at the Southern Gulf (about 1000 tons) is contributed by the fish caught from the Ribb River mouth and its surroundings. This is about 480 tons contributed by mainly Nile tilapia, cat fish and *Labeobarbus* spp. The contribution of *Labeobarbus* spp. is 20 % of the total catch, which is about 100 tons per year. It is reasonable to estimate, thus, that about 60 tons (57.3%) could be from fishes that spawn below the dam and 40 tons (42.7%) fish production could come from fishes that spawn above the dam. Therefore, the inability for the fishes to migrate past the dam site could bring about an estimated loss of about 40 tons of fish production per year from Lake Tana. Moreover, if proper management measures are not taken on the main river and the tributaries below the dam site, and the water level of the main river and its tributaries fall below the level required for the migration of the species as well as inundating the wetlands, it could result in an estimated loss of about 480 tons of fish per year from Lake Tana. This is because any negative measures on the wetlands and the main Ribb River could affect the migratory species as well as the production of Nile tilapia and catfish that have their main breeding grounds on the wetlands. In monetary terms 480 tons is about Birr 1440000/year (producer's rate) or Birr 5280000/year (retailer's rate).

The above estimate is based on the amount of catch that landed at the southern gulf which is one-tenth of the estimated potential of Lake Tana (estimated potential is about 10000 tons). Therefore, the potential monetary loss that could be accrued to Lake Tana fish production due to damages on the Ribb River and its tributaries could roughly be estimated to Birr 50280000 per year.

The number of fish that are migrating to and from Ribb River and its tributaries could be estimated from the actual production of Lake Tana that is contributed by *Labeobarbus* spp. from Ribb River mouth and sourrounding areas which is about 100 tons (100,000 kg) per year. It can reasonably be suggested, thus, that about 200000 adult individuals (an individual adult weighing, on the average, about 500 grams) of *Labeobarbus* species migrate to and from Ribb River. Of this, about 115000

individuals may spawn below the dam while about 75000 individuals spawn above the dam.

The river mouth and shallow areas around Ribb River are ideal breeding and feeding grounds for Nile Tilapia (*Oreochromis niloticus*) and African cat fish (*Clarias gariepinus*) and hence are important habitats that play great roles in the functioning of Lake Tana ecosystem.

Ribb River fishery is insignificant contributing less than 1% to the total fish catch in the Lake Tana basin; a total of about 360 quintals (or 36 tons) of fish is estimated to be harvested from the river annually. Therefore, there are no communities whose livelihoods entirely depend on the fishery of the river.

The contribution of *Labeobarbus* species to Lake Tana fishery was about 40 % in the 1990s and declined to 17 % in 2000s. This implies that this species flock is under pressure from different sources of threat that include fishing at the river mouth during breeding season (recruitment overfishing), spawning habitat destruction, silt load and similar other factors.

With the formation of the reservoir a new fishery is expected to emerge. The reservoir is estimated to be about 1918 ha. On average, the fish production from such type of tropical reservoir is estimated to be about 100 kg/ha/yr. Therefore, 1918 quintal of fish could be produced annually from this reservoir.

Generally, the dam will have an impact on the migratory *Labeobarbus* species that spawn past the dam in upstream Ribb River and its tributaries and that will, in turn, have some impact on the fishery of Lake Tana. It could also have effect on the quantity of water that will be available for the migratory fishes as well as for inundating the wetlands. However, the impact will be insignificant and tolerable if the following major mitigation measures are taken:

- The time of the dam closure/ blocking should not coincide with the period of migration of the fishes (the main rainy season).
- A sufficient volume of flow is required to inundate flood plains, recharge wetlands and provide sufficient depth of water for larger species. Further

hydrological studies may be needed to determine the amount of water required to inundate flood plains and recharge wetlands. However, about 20 cm height of water is the minimum requirement to keep larger species migrating to and from Ribb River.

- It is important to protect the watershed of the main river channel and the tributaries from further deforestation and environmental degradation so that the diversity and productivity of the fish will be maintained. It is recommended that the riparian zone of the main Ribb River and the tributaries is afforested.
- Water use for irrigation from the small tributaries should be minimized especially during the breeding season. Other habitat destruction activities should be avoided.
- In order to improve the livelihood of the people around the dam area, fish must be stocked into the reservoir and the fish species that will be stocked should be species from Lake Tana propagated at a hatchery. Introduction of any new fish species into the reservoir will affect the fish diversity of the Lake Tana sub-basin.
- The fish stock from Lake Tana is sharply declining even before the construction of the dam. It is, therefore, important to rehabilitate the stock using artificial propagation.
- Farmers fishing from Ribb River use destructive fishing methods (poisoning and blocking), and this need to be strongly banned.
    - Fishing should be closed during the spawning months (July to October).
    - Fishers must use gillnets of 10 cm and above stretched mesh size.
    - Licensing of fishers must be immediately materialized.
    - Enforcement of management measures, effective training and extension work should incorporate active participation of the fisher community including the upstream and downstream communities.

Finally, it is hoped that the dam will serve the intended purpose of irrigating farm lands and ultimately mitigating the poverty level and misery of the surrounding farmers without severely compromising the natural ecosystem, which is related to the wellbeing of several generations to come.

BACKGROUND

Ethiopian Drainage Basins

Much of Africa is arid, and Ethiopia could perhaps be called the "water tower of eastern Africa". The country is endowed with some 7000 km^2 of standing water and some 7000 km length of flowing water. Based on similarities of the fauna (especially the fish fauna) and following the model of freshwater ecoregions of Africa (Thieme *et al.*, 2006) the freshwater systems of Ethiopia can be conveniently placed under 5 freshwater ecoregions. These are:

- The Ethiopian Highlands (includes streams, rivers and lakes in the highlands of Ethiopia, but excluding Lake Tana).
- Lake Tana (because of its unique fish fauna).
- Northern Rift (rift valley lakes excluding Lakes Abaya and Chamo because of the Nilo-Sudanic affinities of their fish fauna)
- Lake Turkana (includes the Omo River and its tributaries as well as Lakes Abaya and Chamo)
- Shebele Juba catchments (includes tributaries of Wabi Shebele, Genale, Dawa, and Fafan).
- Red Sea coastal (the Awash system and the saline lakes of northern Ethiopia that includes Lakes Abbe, Afambo, Afdera, and Asale)

These freshwater ecoregions can further be divided into drainage basins. The drainage pattern in Ethiopia is the result of the uplifting during the Tertiary period, which created the Rift Valley and consequently the two separate highlands (Mohr, 1966; Westphal, 1975). Since water bodies found in one drainage basin are somehow interconnected, similarity in their biota is evident. According to Mesfin Woldemariam in Shibru Tedla (1973), the Ethiopian freshwater system can be classified into seven drainage basins. These are the Abay, Awash, Baro Akobo, Omo-Gibe, Rift Lakes, Tekeze and Wabi Shebele-Genale basins.

Ethiopian Freshwater Fishes

The freshwater fish fauna of Ethiopia is of particular interest since it contains a mixture of Nilo-Sudanic, East African, and endemic forms (Roberts, 1975; Abebe Getahun and Stiassny, 1998). The Nilo-Sudanic forms are represented by a large number of species found in the Baro-Akobo, Omo-Gibe, and Abay drainage basins

(e.g. members of the genera *Alestes, Bagrus, Citharinus, Hydrocynus, Hyperopisus, Labeo, Mormyrus* etc.). The southern Rift valley (Lakes Abaya and Chamo), and the Shebele-Genale basins also have elements of these forms. It is believed that these lakes and river basins had former connections with the upper White Nile (through Lake Rudolf in the former case) as recently as 7500 years ago (Roberts, 1975). These Nilo-Sudanic forms are related to West African fishes and this too is believed to be due to past connections of the Nile to Central and West African river systems (Boulenger, 1905: Nichols and Griscom, 1917; Nichols, 1928).

The highland east African forms are found in the northern Rift Valley lakes (e.g. Lakes Awassa, Ziwai, Langano), the highland lakes (e.g. Tana and Hayq), and associated river systems, and the Awash drainage basin. These include members of the genera *Barbus, Labeobarbus, Clarias, Garra, Oreochromis*, and *Varicorhinus*. They are related to fishes of eastern, northern and southern Africa. Some elements are shared with waters of western Africa. For example, *G. dembeensis* is a widely distributed cyprinid species found in 6 countries (Ethiopia, Kenya, Egypt, Tanzania, Cameroun and Nigeria). Nilotic fishes are almost entirely absent from the Awash and northern rift valley lakes.

Although extensive review work is currently in progress, it appears that a preliminary listing of about 152 valid indigenous species represents what is so far known from Ethiopian freshwaters. There are additionally 10 exotic species. Of the 152 indigenous species, about 39 species and two sub-species are endemic to Ethiopia. Moreover, the inadequacies of the present study underline the contention that further extensive collections and identifications will raise both the total number and the number of endemic species of the country.

The highest species diversity is recorded from Baro basin, followed by Abay, Rift Lakes, Wabi Shebele and Omo-Gibe basins. It appears that this high diversity is partly attributable to the presence of highly diverse and rich habitats, but probably also to relatively high level of exploration and collections done in these relatively accessible water bodies. However, endemicity seems to be highest in Abay and Awash basins. This is due to the endemic "species flock" of Lake Tana and the presence of some endemic fishes adapted to localized habitats in small streams in the highlands of north and central Ethiopia. Lake Tana has 28 species and one sub species of which 20

species and one sub species are Ethiopian endemics. 18 species are endemic to Lake Tana.

The drainage basins that are rich in species like the Baro and Omo-Gibe contribute an insignificant proportion of the country's endemic fauna. Only one endemic species (*Nemacheilus abyssinicus*) has so far been recorded from these drainages and this species has also been recorded from Lake Tana. Low levels of endemism are probably due to the Baro and Omo-Gibe drainage basins having connections (present and past) with the Nile and west and central African river systems and as a result all the fish fauna represent widespread Nilo-Sudanic forms.

The major commercially important fish species of the country include *Oreochromis niloticus, Labeobarbus spp., Lates niloticus, Clarias gariepinus, Bagrus docmak*, and *Cyprinus carpio* (introduced).

Lake Tana

Lake Tana is the largest lake in Ethiopia, with a surface area of 3200 Km^2 and a watershed of 16500 Km^2 located at 1830 m above sea level. It forms the headwaters of the Blue Nile, which carries more than 80% of the total volume of the Nile River at Khartoum, Sudan. The lake has been isolated from the lower Blue Nile basin by a 40 m. high water fall, 30 km downstream from the Blue Nile outflow. Lake Tana emerged as one of the global top 250 lake regions most important for biological diversity (Barker, 2004).

Lake Tana is an oligo-mesotrophic shallow lake with an average depth of 8 m and maximum depth of 14 m (Wassie Anteneh, 2005). The lake is turbid, well mixed and has no thermocline (Eshete Dejen *et al*, 2004). Fogera (on the east) and Dembea (on the north) plains border major parts of Lake Tana, and they are considered to be the buffering zones of the lake (Nagelkerke, 1997). The lake is believed to have originated two million years ago by volcanic blocking of the Blue Nile River (Mohr, 1962). It assumed its present shape through blocking of a 50 km long quaternary basalt flow, which filled the exit channel of the Blue Nile River (Chorowicz *et al.*, 1998). However, there are strong evidences that Lake Tana had dried up between 16000 and 50000 years ago (Lamp *et al.*, 2004).

Lake Tana Fishes and Fisheries

In Lake Tana, the families Cichlidae and Clariidae are represented by only one species each, *Oreochromis niloticus* and *Clarias gariepinus*, respectively. *Nemacheilus abyssinicus* is an endemic species belonging to the family Balitoridae and inhabit the littoral areas of Lake Tana. The largest fish family in the lake is Cyprinidae, represented by four genera, *Barbus, Garra, Varicorhinus* and *Labeobarbus*. The genus *Barbus* includes the "small" barbs and is represented by three species, namely, *B. humilis*, *B. pleurograma* and *B. tanapelagius* (de Graff *et al*, 2000). *Varicorhinus* is represented by a single species, *V. beso*. The genus *Garra* is represented by four species, *G. dembecha, G. dembeensis, G. regressus* and *G. tana* (Stiassny and Abebe Getahun, 2007).

The most significant genus of the family Cyprinidae in Lake Tana is *Labeobarbus*. The *Labeobarbus* species of Lake Tana have previously been classified under the genus *Barbus*. However, large, hexaploid African *Barbus* are renamed as *Labeobarbus* (Skelton, 2001, Berrebi and Tsigenpoulos, 2003, Snoeks, 2004). The new genus name better reflects their phylogenetic distance from other members of the overly lumped genus *Barbus*. *Labeobarbus* spp. differ not only in their resource partitioning (feeding) but also in their reproductive strategies (de Graff *et al.*, 2005). There are 15 species of *Labeobarbus* forming a unique species flock in Lake Tana, the only cyprind species flock in the world, after the ones in Lake Lanao vanished because of overexploitation.

Until the end of the 1980s, fishing on Lake Tana was subsistence reed boat fishery. In 1986 motorized boats and nylon gill nets were introduced as part of the Lake Tana Fisheries Resource Development Program, which was initiated by the Ethiopian Ministry of Agriculture, the Ethiopian Orthodox Church, and two Dutch NGOs (ISE-URK and ICCO-Zeist) (Wassie Anteneh, 2005). Accordingly, the total annual catches increased from 39 MT in 1987 to 360 MT in 1997 (Tesfaye Wudneh, 1998). However, Catch per Unit Effort of the *Labeobarbus* species from the commercial gill net fishery drastically dropped down from 63 kg/trip in 1991 to 28 kg/trip in 2001 (de Graff *et al.*, 2004). The same author has reported from the southern gulf of Lake Tana about 75% decline (in biomass) and 80% (in number) of the *Labeobarbus* spp. (*L. acutrostris, L. macrophthalmus, L. platydorsus, L. brevicephalus, L. tsanensis, L. intermedius).* The most plausible explanation for the decline of the stock is not

natural environmental destruction but recruitment over fishing by the commercial gill net fishery (de Graff *et al.*, 2004) and poisoning of the spawning stock in rivers using the crushed seeds of birbira (*Milletia ferruginea*) (Nagelkerke and Sibbing, 1996; Abebe Ameha, 2004).

The commercial gill net fishery on *Labeobarbus* spp. is highly seasonal and mainly targets the spawning aggregations, as more than 50% of the annual catch is obtained in the river mouths during August and September.

Migration in Fishes

According to Rodriguez-Ruiz and Grando-Lorencio (1992) in Wassie Anteneh, 2005, migration of fish refers to a displacement between two or more habitats, commonly between feeding and reproduction habitats, with a regular periodicity (sometimes annually) and involving a large fraction of a population. Control of the timing of migration to rivers depends on interaction between the internal physiological state of the fish and the external triggering factors in the environment (Northcote *et al.*, 1970). The external triggering factors include mostly moon phase, photoperiod, river flow, water temperature, turbidity, and water volume.

Adults of anadromous species migrate up rivers to spawn and the young descend to the lakes to feed and grow. Results of limited number of studies indicate that migratory behavior of individual fish indicate that migratory movements are not random, but are oriented, with varying precision, in the general direction of home (Leggett, 1977). Several species of fish are known to be capable of obtaining directional information from the sun, polarized light, and geomagnetic fields. Some limited inertial guidance may also be involved.

An impressive body of literature supports the hypothesis that fish migrations involve a continuous optimization of physiological and neurological states in response to a multiplicity of environmental stimuli. Recognition of the home area apparently involves both olfactory and local topographic cues. Each river, and apparently each tributary, has a characteristic odor. Homing may result in reproductive isolation. This isolation is essential to the development of complex behavioral, energetic, and reproductive adaptations to the reproductive habitat occupied.

Gonad maturation is endogenously regulated but environmentally synchronized, in the temperate region, most probably by the rate of photoperiod change (Thorpe, 1988). However, most tropical freshwater fishes spawn seasonally during the rainy period (Lowe-McConnell, 1975; Payne, 1986). Most large cyprinids of Africa spawn by making a single annual breeding migration to upstream areas of rivers (Lowe McConnell, 1975; Tomasson *et al.*, 1984).

The Effects of Dam Building on Fishes

Dams block the migratory movements of spawning fishes in streams. The blockage of fish movements upstream can have a very significant and negative impact on fish biodiversity. According to McAllister *et al.*(unspecified date) many stocks of Salmonidae and Clupeidae have been lost as a consequence. In the Columbia River, U.S.A., more than 200 stocks of anadromous, Pacific salmonids became extinct as a result of such actions.

While dramatic declines in migratory species such as lampreys, sturgeons, salmons and clupeids were well known in European rivers, other fishes, the so called resident or non-migratory fishes which perform in-stream movements require attention. These include different species of minnows, sculpins, and graylings. Even small sized species such as the white bream, *Abramis bjoerkna*, were found to migrate up to 60 km from the place they were tagged.

Reservoirs formed as a result of damming trap suspended particles, reducing turbidity downstream. Many species are adapted to natural turbidity; for example, turbid water catfishes have small eyes, refined senses of smell and touch in their sensitive barbells. The turbid water helps conceal the fish and other biota from visual predators like birds. When normally turbid water becomes clear below dams, the indigenous species may find themselves at a disadvantage. Other animal species may move in, filter feeders and aquatic vegetation may flourish. Sediment burrowing species may find their habitat has diminished. Flood plain ecosystems and deltas may no longer be replenished by the annual transport of sediment. Silt and increased turbidity, above natural levels, can interfere with primary production.

Water quality, flow and seasonality of flow are not normally disrupted in the upstream area above the reservoir so impacts are generally less than for the reservoir and

downstream areas. Nevertheless, the dam and the reservoir affect migratory movements of species into and out of this upstream area. The genetic exchanges with downstream segments is reduced or prevented.

In the construction of reservoirs, the clearing of vegetation, movement of earth and rock, the presence of humans and machinery, bringing in construction materials, use of explosives, noise and reducing or cutting off river flow and increasing turbidity, will affect biodiversity. Removal of forests or other vegetation over a wide area, excavation, earth and rock movement and reductions in river flow are the most significant.

During reservoir filling the river and any associated wetland areas become inundated. Riffles, runs and pools of the river are lost beneath the rising waters, leading to the extirpation (or extinction) of habitat sensitive riverine species with tightly defined niche requirements. Fishes in rivers are generally well adapted to flowing water. The transformation of a river to a reservoir, therefore, poses a problem for the resident; mainly riverine species that are not adapted to the new conditions.

Reservoir fisheries are one of the frequently claimed benefits of impoundments. The changes in catches following impoundments are variable. However, the catches in new reservoirs frequently go through a "boom and bust" cycle, with catches initially increasing following filling of the reservoir and then declining. Therefore, impact assessments of dams should be based on the long term catches.

In the downstream segment, most of the impacts of a dam are negative. In a preliminary assessment of 66 case studies of the impact of dam construction on fishes, based on qualitative information, 73% of the impacts were negative and only 27% were positive. About 55% of the impacts were below the dam and linked to fish migrations and to flood plain access (McAllister, *et al.* unspecified date).
Upstream impacts are generally less than those in the reservoir or downstream. The exception to this generalization is the migratory species that move up and downstream and use such movements to maintain genetic diversity.

It is clear that the World Charter for Nature was adopted by the UN General Assembly in 1982. It provides the guiding principles that should govern human

responsibility for biodiversity. It states that "activities which might have an impact on nature shall be controlled, and the best available technologies that minimize significant risks to nature or adverse effects shall be used; in particular.

- Activities which are likely to cause irreversible damage to nature should be avoided;
- Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed;
- Activities which may disturb nature shall be preceded by assessment of their consequences, and environmental impact studies of development projects shall be constructed in advance, and if they are to be undertaken, such activities shall be planned and carried out so as to minimize potential adverse impacts".

Similar statements are found in Convention on Biological Diversity. The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also states, among its fundamental principles, that: 'the parties acknowledge the need to take actions to avoid any migratory species becoming endangered" which is particularly relevant to our report.

The World Bank's operational Policy on natural habitats requires that comprehensive analysis should demonstrate that overall benefits from a project outweigh the environmental costs before significant conversion of natural habitats is allowed, unless there are no feasible alternatives for the project.

Although approximately 300 new freshwater species are discovered each year, amphibians, fish and wetland birds are at high risk of becoming extinct in many regions of the world. More than 20% of all freshwater fish species are now considered threatened or endangered, mostly due to damming (Truffer, *et al.*, 2003).

The Initiation and Execution of this Study

This study was initiated and sponsored by the Ministry of Water Resources to find out whether or not the envisioned dam building on the main Ribb River, Lake Tana tributary, will affect the migratory fishes of the *Labeobarbus* species and the extent of its effect on the ecosystem and the people depending on the fishes for their livelihood.

Accordingly, a team was organized that consists of the lead aquatic ecologist and two other aquatic ecologists together with fishery experts and fishermen. The first field study and sampling took place from 31 July to 13 August 2007. In this first trip, sampling sites were properly identified and fish samples, although few, were collected from the main Ribb River and its tributaries.

As a continuation of this effort the second field trip to the main river and its tributaries took place in two periods from 27 August to 3 September 2007 and from 17 to 30 September 2007. The Second field trip was divided into two periods because of the heavy rains that continued until mid- September that made it very difficult to work on the main Ribb River. In the first part (27 August to 3 September) of the trip only the tributaries were sampled while in the second part both the main channel (Ribb) and its tributaries were explored.

The third and final field trip took place between 20 October and 5 November 2007. During this time the water level of the tributaries was so low that it was not possible to sample from the tributaries, and hence sampling was mainly limited to the main river channel and the river mouth. It has to be noted that the study was conducted in a very difficult logistic and physical conditions and demanded mobilization of human and material resources within a short period of time.

This final report is a compilation and analysis of data collected in those three field trips from Ribb River and its tributaries. The report has an **"Introduction"** that consists of general and brief background information on Ethiopian drainage basins, Ethiopian freshwater fishes, Lake Tana and its fish and fisheries, migration and dam building. The **"Materials and Methods"** section describes the sampling sites as well as the materials and methods used in the sampling process. The **"Results and Discussions"** section presents the major findings and elaborates the implications of these findings. The **"Conclusions and Recommendations"** outline the selected outcomes of the report and indicate possible mitigation measures that need to be taken before, during and after the construction of the dam. **References and appendices** (consisting of individuals and institutions contacted, questionnaire prepared for socio-economic data collection, raw data and some selected pictures) are also part of the report.

Objectives of the Study

The specific objectives of the study are to find out:

- whether or not there are migratory fish species from Lake Tana to Ribb River.
- the diversity and abundance of fish species that migrate to Ribb River from Lake Tana.
- whether or not dam building on Ribb River will affect the migratory behavior of fishes of Lake Tana.
- the extent of damage and habitat loss, otherwise important for the spawning fishes, that would follow as a result of the dam construction,
- the extent of economic damage that may ensue on Lake Tana fisheries,
- mitigation measures that should be taken in order to minimize the negative effects.

STUDY SITES, MATERIALS AND METHODS

Study Sites

Ribb River is approximately 90 km long and originates from Gunna Mountains range in South Gondar Administrative Zone at an altitude of 2400 m. 13 sampling sites were identified on the main Ribb River and its tributaries (Fig. 1). The sampling sites are distributed evenly along much of the length of the Main River below and above the dam site. A brief description of each site is given below and their physical conditions are listed in Table 1.

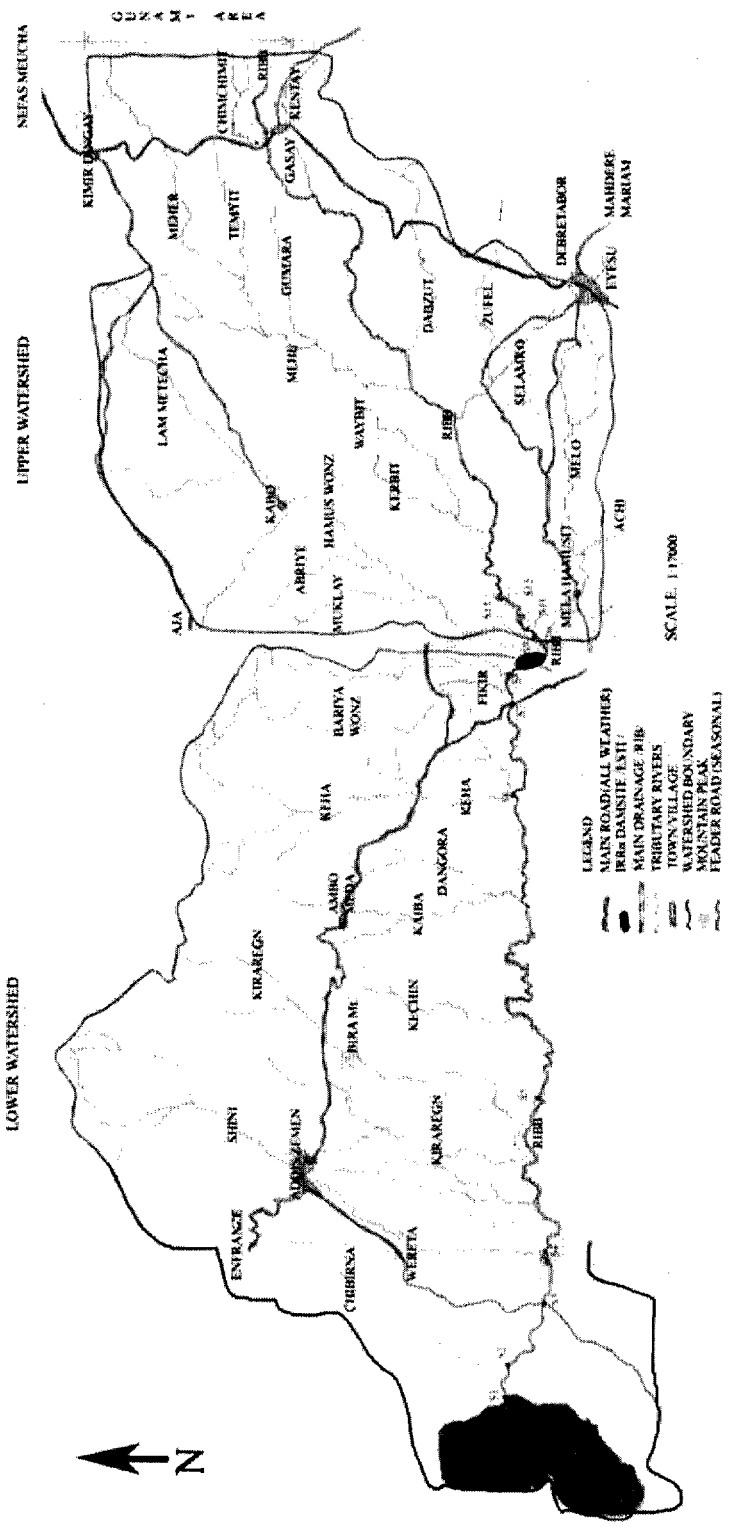


Fig. 1. Ribb River water shed and the sampling sites

Description of the Study Sites:

1. **River mouth (RM): N 12°02'27.6'' and E 37°35'49.3''; Elevation 1800 m.** This is a site located at the junction of Ribb River with Lake Tana. This is a site where migratory fishes are expected to aggregate before the onset of migration to the main river and its tributaries. This site is accessible only by boat from the Bahir Dar Gulf.
2. **Chibirna River (tributary of Ribb River) (CH):** N 12°04'30.8'' and E 37°44'4.7''; Elevation 1836 m. This is a temporary tributary of Ribb River located between Addis Zemen and Yifag on the western side of the road between Bahir Dar and Gondar. There is over flooding during the rainy season and it is one of the major contributors to the flood over Fogera plains.
3. **Main Ribb River at the Bahir Dar-Gondar Bridge near Woreta town (MC1):** N 11°59'38'' and E 37°42'38.6''; Elevation 1799 m. This is located at a plain farm area with some eucalyptus trees around the banks. The surrounding is highly exposed to flooding and erosion and the water at this site is usually turbid.
4. **Shini River (tributary of Ribb River) (SH):** N 12°05'42.7" and E 037°45'36.5"; Elevation 1869 m. The above two tributaries, Shini and Chibirna, originate from different widely separated localities and they join at the Fogera plains of the Libo Kem Kem side and highly contribute to the surrounding flood and finally join the lower part of Ribb River in the rainy season. At the beginning of the study, we didn't consider Shini River as a separate sampling site, since we thought that the two rivers join on the Fogera plains, and may not show distinctions. However, we later found out that Shini River, by its own, is a very good breeding habitat as its bed is filled with gravels all along its upper length. So, we collected additional samples from the river and included it in the list of sampling sites.
5. **Kirarign River (tributary of Ribb River) (KI):** N 12°02'04.8'' and E 37o47'32.2''; Elevation 1801 m. It measures to 2-5 m wide, with pool up to 1.50 m depth and the river mouth (the place where the tributary joins the main Ribb channel) is muddy. Further upstream the river bed is composed of cobble and gravel. The vegetation is quite scarce and there are farm lands all around.
6. **Keha River (tributary of Ribb River) (KE):** N 12°02'07.4'' and E 037°56'45.4''; Elevation 1836 m. It is about 3-5 m wide, with pools up to 2 m

deep. The river mouth is muddy whereas further upstream the river bed is composed of gravels.

7. **Main Ribb River at the old Broken Bridge (on the old road from Zeha to Debretabor) (MC2):** N 12°02'54.2'' and E 37°59'05.2''.

   This channel, during the rainy season, is very wide measuring to about 30 meters with depths ranging from 1.2 to 5 meters. It is an area denuded of its natural vegetation and all the riparian area is tilled for growing crops. Hence, the river is too turbid during the rainy seasons due to the introduction of silt from the surrounding land through erosion.

8. **Barya River (tributary of Ribb River) (BA):** N 12°02'54.4'' and E 37°59'49.0''. This is a small tributary river of the main Ribb and flows, although in small quantity, through out the year. There is farm land on all its sides and the riparian vegetation has disappeared except at some gorgy areas where tilling the land is difficult and some herbs are eminent.

9. **Main Ribb River at the dam site (MC3):** N 12°02'01.4'' and E 38°00'22.0''.

   During the rainy season Ribb at the dam site is rapid. The bed is covered by coble and pebbles. There are two hills (Aydagn on the northern Ebenat side and Tigab Amba on the southern Farta side) in the middle of which Ribb flows. The land around this site is used as a farm land for crop production. There is little riparian vegetation left.

10. **Hamus River (tributary of Ribb River) (HA):** N12°00'26.1'' and E 38°01'16.6''. Hamus River is a perennial tributary which joins Ribb River from the northern Ebenat Woreda side. Hamus River is the largest tributary of Ribb River. During the sampling months, it is about 6-8 m wide and 1.5-2 meters deep. The velocity of the water at the mouth is higher. In August, it was as turbid as the main Ribb channel, but in September and October the water was very clear. The river bed has pebbles and gravels at its mouth. Hamus River at its upper part passes through mountainous and highly dissected land and at its mouth it is clear with no vegetation cover.

11. **Main Ribb River above the junction with Hamus River (MC4):** N12°00'35'' and E 38°02'34''. Ribb River at this site forms some pockets of pools at some intervals of the stretch. The bottom profile of the river is covered by boulders and pebbles. The velocity of the river is higher except at the pockets. The land in the area is farmed for crop production. There is no

riparian vegetation except some eucalyptus trees. The water is turbid like that of the lower sites of the Ribb River.

12. **Melo River (tributary of Ribb River) (ME):** N 12°02'32'' and E 38°02'45.5''.

    Melo River is a small temporary tributary stream which joins Ribb River on the southern Farta Woreda side. It is about 3 m wide and 0.5 m deep during the sampling period. It was less turbid as compared to the main Ribb River. The bottom at its mouth is gravel bedded. Like that of Hamus River it is not shaded with riparian vegetation or macrophytes. The water of Melo River is slow flowing.

13. **Main Ribb River above the junction with Melo River (MC5):** N12°02'15.3'' and E 38°02'24.4''. Ribb River at this site flows relatively slowly as the land is plain and it forms deeper pools. The water was clear as compared to the lower sites. The bottom is covered by pebbles. There is no vegetation cover. Reptiles such as the Nile crocodile were common at this site.

Table 1. Average value of oxygen, temperature, pH and depth at the sampling sites.

Site number	Site name	Oxygen (mgl^{-1})	Temp. (^0C)	pH	Depth (m)
1	Ribb River Mouth	6.4	22.1	7.89	3.5
2	Chibirna River	6.7	23.1	NA	0.5
3	Ribb main channel (Bahir Dar-Gondar bridge)	5.6	22.1	7.91	2
4	Keha River	NA	22.7	8.24	0.3
5	Kirarign	NA	18.3	7.61	0.75
6	Shini	NA	23.1	8.09	0.72
7	Ribb main channel (Ziha Debretabor old bridge)	6.5	21.2	7.79	1.25
8	Barya River Mouth	6.6	22.6	7.86	0.5
9	Dam site	6.8	23.8	7.5	1.25
10	Hamus River	6.9	22.3	7.76	0.75
11	Mello River	7.12	22.9	7.78	0.74
12	Ribb main channel (Bet. Hamus and Mello Rivers)	6.2	21.5	7.80	1.24
13	Ribb main channel (upper Mello River)	6.3	22.3	7.83	1.23

MATERIALS AND METHODS

The samplings were extensively and systematically done throughout the rainy season (end of July to beginning of November), collecting 2457 specimens of *Labeobarbus* spp. and other groups of fish from 13 sampling sites.

- Site selection was accomplished by inspection of the main river for appropriate fishing sites and determining whether or not the tributaries flow throughout the year. The information was secured through interview of experts of the Ministry of Agriculture and the local fishermen and farmers.
- In all of the sites day time and overnight gill net settings were made using polyfilament gill nets with 6, 8, 10 and 12 cm stretched mesh size and with a panel length of 25 and 50 meters and depth of 3 meters each. Fykes, cast nets, scoop nets and hooks and lines were also employed. Fish were also purchased in some upstream sampling sites from local fishermen who used locally made scoop net and cast net to capture fish.
- Fish collected in the river mouths were transported fresh to the laboratory of Bahir Dar Fish and Other Aquatic Life Research Center whereas catches from upstream sites were processed at the site.
- All of the fishes caught were identified to species level with immediate inspection (for obviously known species) and with the help of identification key (Nagelkerke *et al.*, 1994).
- Measurements of Fork length (to the nearest 0.1 cm), Total weight (to the nearest 0.1 gram), and Gonad weight (to the nearest 0.01 gram) were taken using measuring board and sensitive balances.
- Each fish was dissected; the gonads were examined visually and sexed. The gonad maturity stage of each *Labeobarbus* specimen was determined according to Pet *et al.* (1996), modified from De Silva *et al.* (1985) in Nagelkerke, 1997 (Table 2).
- Length-weight relationship of five most abundant *Labeobarbus* species of Lake Tana spawning in Ribb River was computed using least square regression analysis of $TW = aFL^b$ (Bagenal and Tesch, 1978), where, TW = total weight (g), FL = fork length, a is the intercept, and b is the slope of the regression line.

- Physico-chemical parameters were measured using GPS, Oxygen meter, pH meter, and Conductivity meter. Depth was measured with Sechi Disc and measuring rope. The type of bottom substratum and the status of the surrounding vegetation were inspected and recorded.
- Farmers residing around the dam site and elsewhere around the sampling sites were interviewed based on questions designed for this purpose (see appendix 2 for the type of questions).
- The Amhara Regional Bureau of the Ministry of Agriculture and Rural development and the Fish and Other Living Aquatic Resources Research Center at Bahir Dar were contacted and consulted for availability and acquisition of long term fisheries data (both commercial and experimental).
- Libraries at the Science Faculty, Addis Ababa University and the Amhara Regional Agricultural Research Institute were searched for relevant literature.

Table 2. Gonad maturity stages and descriptions for cyprinids (Source: Nagelkerke, 1997)

Gonad stages	Male	Female
I	*Immature, impossible to distinguish females from males. Gonads are a pair of transparent strings running along the body cavity.*	*Immature, impossible to distinguish females from males. Gonads are a pair of transparent strings running along the body cavity.*
II	*Unambiguously male, very small testes, white-reddish, not lobed, tube-shaped strings*	*Unambiguously female, very small ovaries, tube shaped and reddish, eggs not visible.*
III	*Larger testes, white-reddish, some what lobed starting to flatten sideways*	*Ovary somewhat larger and starting to flatten sideways, eggs visible, but very small*
IV	*Large testes, white-reddish, lobed, flattened sideways*	*Larger ovary, flattened sideways and almost covering body cavity wall, eggs yellowish*
V	*Large, white testes, some sperm runs out when testis is cut*	*Larger and full ovary, completely covering body cavity wall, yellowish eggs run out when ovary is cut*
VI	*Large white testes, running, large amount of sperm runs out when testis is cut*	*Running, yellow eggs can be extruded by putting pressure on the abdomen*
VII	*Spent, empty testes, reddish and wrinkled*	*Spent, wrinkled ovary, reddish, containing a few yellow eggs*

RESULTS AND DISCUSSION

Fish Species Diversity from Ribb River and its Tributaries

Eighteen species belonging to five genera and three families were identified from the thirteen sampling sites (Table 3). Of the total of 15 species of *Labeobarbus* occurring in Lake Tana, 13 species (86.7 %) have been identified from the river mouth, main Ribb River and its tributaries. The highest species diversity (16 species) has been recorded from the river mouth where only *Labeobarbus degeni* and *Garra* sp. were absent. The next two sites that showed higher diversity were the Ribb channel at the Bridge on the main road from Bahir Dar to Gondar and Chibirna River. It is interesting to note that these sites are the closest to the River mouth. It is reasonable, thus, to see higher diversity at sites which are close to the origin of "dispersal", although the diversity may be dependent on the intensity of sampling, the type of gears used in sampling and the period of sampling.

Clarias gariepinus, O. niloticus, *V. beso, B. degni*, and *Garra* species were caught together with the migratory *Labeobarbus* species. *Clarias gariepinus* and *O. niloticus* were common at the Ribb River mouth and in the main channel but rare or absent in the upper small tributaries of this river. Both are commonly found in most African lakes, rivers and reservoirs as they are ecologically most resilient fishes. Both species spawn in the floodplains and littoral parts of the lake (Zenebe Tadesse, 1997; Tesfaye Wudneh, 1998) but never migrate to upstream rivers unlike *Labeobarbus* species. Peak spawning for *C. gariepinus* occurs at the beginning of July while although *O. niloticus* spawns throughout the year, peak spawning occurs in March and July. Therefore, the specimens of these two species collected in the Ribb upstream are most probably dwelling in the river since the season and breeding ground of these species is different from our sampling time and sites. This is again substantiated by the presence of a large number of immature fish in the samples.

The remaining three cyprinids: *V. beso, L. degni* and *Garra* sp. were also collected during the sampling period (Table 3). *Varichorhinus beso*, which contributes 1% of the commercial catch in Lake Tana, was almost as abundant as some *Labeobarbus* species such as *L. tsanensis* collected in this study. Only two specimens of *V. beso* were caught at the Ribb River mouth. Most of the specimens of this species were

collected from the main channel and the small tributaries of Ribb River. Out of the 101 specimens 41 were immature. This species spawns throughout the year (Wassie Anteneh, unpublished data). No published data is available about the reproductive biology of this species, however, from gonad maturity status analysis and rare occurrence of this species at the river mouth; it is possible to conclude that *V. beso* lives (feeds and reproduces) in Ribb River basin.

The unverified species *L. degeni* was collected from Barya River and at the dam site. No report or published data is available on the occurrence of this species in the Lake Tana basin. Similarly unidentified (at the species level) specimens from the genus *Garra* were collected in the upper tributary streams of Ribb River. This genus is common in the Lake Tana basin (Wassie Anteneh, 2005; Akewak Geremew, 2007).

Generally, the diversity of *Labeobarbus* spp. observed in Ribb River and tributaries is high. The construction of the dam is feard to create bottlenecks in some population of the *Laboebarbus* spp. (those that are already in small numbers) and threaten them to extinction.

Table 3. Species of fish identified from the different sampling sites of Ribb River.

Family	Genus	Species
Cyprinidae	*Labeobarbus*	*acutirostris*
Cyprinidae	*Labeobarbus*	*brevicephalus*
Cyprinidae	*Labeobarbus*	*crassibarbis*
Cyprinidae	*Labeobarbus*	*degeni*
Cyprinidae	*Labeobarbus*	*gorgorensis*
Cyprinidae	*Labeobarbus*	*intermedius*
Cyprinidae	*Labeobarbus*	*longissimus*
Cyprinidae	*Labeobarbus*	*macropthalmus*
Cyprinidae	*Labeobarbus*	*megastoma*
Cyprinidae	*Labeobarbus*	*nedgia*
Cyprinidae	*Labeobarbus*	*platydorsus*
Cyprinidae	*Labeobarbus*	*surkis*
Cyprinidae	*Labeobarbus*	*truttiformis*
Cyprinidae	*Labeobarbus*	*tsanensis*
Cyprinidae	*Garra*	*dembeensis*
Cyprinidae	*Varicorhinus*	*besso*
Claridae	*Clarias*	*gariepinus*
Cichlidae	*Oreochromis*	*niloticus*

Table 4. Occurrence and total number of species of fish from the different sampling sites of Ribb River.

Site/ Species	RM	MC1	CH	SH	KI	KE	MC2	BA	MC3	HA	MC4	ME	MC5
L. acutirostris	√	√											
brevicephalus	√		√	√	√	√	√	√	√	√	√	√	√
crassibarbis	√												
degeni									√				
gorgorensis	√	√	√			√	√	√		√			
intermedius	√	√	√	√	√	√	√	√	√	√	√	√	√
longissimus	√												
macropthalmus	√												
megastoma	√	√	√		√	√	√	√		√			
nedgia	√	√	√	√	√	√	√	√	√	√		√	√
platydorsus	√	√											
surkis	√	√											
truttiformis	√	√	√		√		√			√			
tsanensis	√	√				√	√	√					
G. dembeensis			√	√						√		√	
V. besso	√		√	√		√	√	√	√	√	√		√
C. gariepinus	√	√	√	√	√	√	√	√	√		√		√
O. niloticus	√	√	√	√	√								√
Total	**16**	**11**	**10**	**7**	**7**	**8**	**9**	**8**	**6**	**8**	**4**	**4**	**6**

Fish Species Abundance in the Ribb River and its Tributaries

The most abundant species from all sampling sites was *Labeobarbus intermedius* constituting more than 30 % of the total number of specimens collected. This is not surprising as this is a "waste basket", as all specimens that cannot easily be identified to any distinct species are included in this species "complex". This species is also believed to be the original (ancestral) group that is well adapted to riverine conditions. *L. brevicephalus, L. megastoma* and *L. truttiformis* are other *Labeobarbus* spp. that were found in relative abundance of 25.07 %, 9.28 % and 6.35 %, respectively.

Specimens of *L. nedgia* were relatively more abundant (about 25 specimens/trip) in the upstream areas and *L. nedgia* with immature gonads were also caught in the upstream sampling sites. Moreover, this species did not aggregate at the Ribb River mouth and the most probable explanation is that *L. nedgia* may be feeding and spawning in Ribb River basin and does not enter into the lake. This riverine dwelling behavior of this species was also reported from Megech River basin (Wassie Anteneh, 2005).

In previous studies (Nagelkerke and Sibbing, 1996; Dgebuaze *et al.*, 1999; Palstra *et al.*, 2004; de Graaf *et al.*, 2005), and this one, seven species (*L. crassibarbis, L. dainellii, L. gorgorensis, L. gorguari, L. longissimus, L. nedgia*, and *L. surkis*) did not form aggregation in Gelgel Abbay, Gelda, Gumara, and Ribb River mouths. Moreover, the rare occurrence of *L. platydorsus, L. acutirostris* and L. *macrophtalmus,* in Ribb River in this study may be explained by the limited number of samplings conducted. Experimental data taken from the different fishing sites of Lake Tana (Table 10) indicate a similar pattern of abundance in the lake.

In general, two hypotheses can be forwarded for all the rare and missing *Labeobarbus* species:

1. They may spawn in a smaller perennial river Arno-Garno (Fig. 1), or
2. These fish species may spawn in the lake (lacustrine spawners).

From the other genera, *O. niloticus, C. gariepinus* and *V. beso* were found in 5.98 %, 5.62 % and 4.19 %, respectively.

Table 5. Total abundance of species from all the sampling sites of Ribb River

Species	Number of specimens	% Composition
L. acutirostris	9	0.37
L. brevicephalus	616	**25.07**
L. crassibarbis	2	0.08
L. degeni	5	0.20
L. gorgorensis	78	3.17
L. intermedius	775	**31.54**
L. longissimus	1	0.04
L. macropthalmus	1	0.04
L. megastoma	228	**9.28**
L. nedgia	59	2.40
L. platydorsus	57	2.32
L. surkis	10	0.42
L. truttiformis	156	**6.35**
L. tsanensis	62	**2.52**
G. dembeensis	10	0.41
V. besso	103	**4.19**
C. gariepinus	138	**5.62**
O. niloticus	147	**5.98**
Total	**2457**	**100**

The highest number of specimens (50.14% of the total) was collected from the River Mouth site. This is a site where all migrating species aggregate before the onset of migration. The main channel at the Bridge between Bahir Dar and Gondar town stands second in abundance of species, whereas the tributary rivers, Chibirna, Barya, Keha and Kirarign Rivers stood third, fourth, fifth and sixth, respectively. The abundance of specimens, apparently, positively correlates with the diversity of species except the case at MC2 (the main channel at the old Ziha-Debretabor Bridge) where the diversity was relatively higher, but the abundance was relatively lower. In principle, however, the diversity of species may not necessarily positively correlate with the abundance of specimens. The abundance of specimens is apparently observed at sites below the dam site and it is also evident that the extent of spawning habitat (total length of Ribb and tributary rivers) is greater below the dam than above the dam. Therefore, these habitas need proper management and monitoring.

Table 6. Number of species and their percentage composition from the different sampling sites of Ribb River

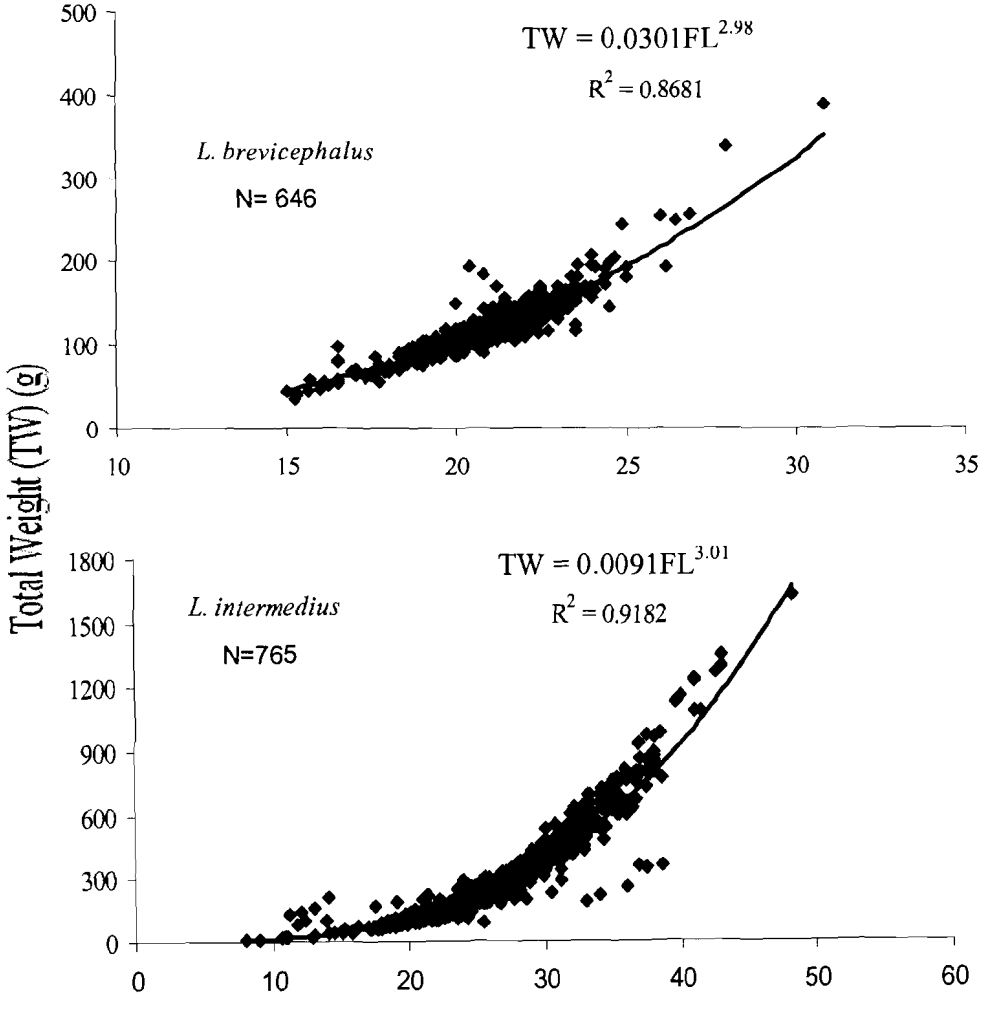
Site/ Species	RM		MC1		CH		SH		KI		KE		MC2	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
acutirostris	6	.24	3	.12	--	--	--	--	--	--	--	--	--	-
brevicephal	133	5.4	--	--	95	3.9	57	2.3	102	4.2	104	4.23	24	.98
crassibarbis	2	.08	--	--	--	--	--	--	--	--	--	--	--	--
degeni	--	--	--	--	--	--	--	--	--	--	--	--	--	--
gorgorensis	27	1.1	36	1.5	3	.12	--	--	--	--	1	.04	2	.08
intermedius	405	16.5	168	6.8	16	.65	4	.16	3	.12	8	.33	22	.90
longissimus	1	.04	--	--	--	--	--	--	--	--	--	--	--	--
macropthal	1	.04	--	--	--	--	--	--	--	--	--	--	--	--
megastoma	144	5.9	10	.41	2	.08	--	--	5	.20	16	.65	1	.04
nedgia	3	.12	1	.04	1	.12	2	.08	1	.04	6	.24	7	.28
platydorsus	55	2.24	2	.08	--	--	--	--	--	--	--	--	--	--
surkis	9	.37	1	.04	--	--	--	--	--	--	--	--	--	--
truttiformis	127	5.2	6	.24	9	.37	--	--	7	.28	--	--	2	.08
tsanensis	52	2.1	2	.08	--	--	--	--	--	--	3	.12	2	.08
dembeensis	--	--	--	--	5	.20	1	.04	--	--	--	--	--	--
besso	2	.08	--	--	20	.81	7	.28	--	--	2	.08	3	.12
gariepinus	41	1.7	48	2.0	3	.12	3	.12	5	.20	7	.28	5	.20
niloticus	124	5.1	4	.16	8	.33	8	.33	1	.04	--	--	--	--
Total	1132	50.14	281	11.4	162	6.6	82	3..34	124	5.05	147	5.98	68	2.77

Table 6-contd. Number of species and their percentage composition from the different sampling sites of Ribb River.

Site/ Species	BA		MC3		HA		MC4		ME		MC5		Overall Total	
	N	%	N	%	N	%	N	%	N	%	N	%	**N**	**%**
acutirostris	--	--	--	--	--	--	--	--	--	--	--	--	**9**	**.37**
brevicephal	34	1.38	10	.41	24	.98	13	.53	9	.37	11	.45	**616**	**25.1**
crassibarbis	--	--	--	--	--	--	--	--	--	--	--	--	**2**	**.08**
degeni	--	--	5	.20	--	--	--	--	--	--	--	--	**5**	**.20**
gorgorensis	5	.20	--	--	4	.16	--	--	--	--	--	--	**78**	**3.18**
intermedius	61	2.48	32	1.3	27	1.1	11	.45	3	.12	15	.61	**775**	**31.54**
longissimus	--	--	--	--	--	--	--	--	--	--	--	--	**1**	**.04**
macropthal	--	--	--	--	--	--	--	--	--	--	--	--	**1**	**.04**
megastoma	35	1.43	--	--	15	.61	--	--	--	--	--	--	**228**	**9.28**
nedgia	9	.37	14	.57	11	.45	--	--	1	.04	3	.12	**59**	**2.40**
platydorsus	--	--	--	--	--	--	--	--	--	--	--	--	**57**	**2.32**
surkis	--	--	--	--	--	--	--	--	--	--	--	--	**10**	**.41**
truttiformis	--	--	--	--	5	.20	--	--	--	--	--	--	**156**	**6.34**
tsanensis	3	.12	--	--	--	--	--	--	--	--	--	--	**62**	**2.52**
dembeensis	--	--	--	--	3	.12	--	--	1	.04	--	--	**10**	**.41**
besso	7	--	40	1.63	15	.61	4	.16	--	--	3	.12	**103**	**4.19**
gariepinus	4		18		--	--	1	.04	--	--	3	.12	**138**	**5.61**
niloticus	--	--	--	--	--	--	--	--	--	--	2	.08	**147**	**5.97**
Total	158	6.43	119	4.84	104	4. 23	29	1.18	14	.57	37	1..51	**2457**	**100**

Length-weight Relationship of the Dominant *Labeobarbus* spp.

Total weight was curvilinearly related with fork length in the five most dominant *Labeobarbus* species of Lake Tana spawning in Ribb River. The regression coefficients were near the cube value (b=3). The results obtained in this study fit with the "theoretical" cube law; which means growth in these fish species is isometric (weight increases at a rate of about a cube of increase in length) (Fig. 2). A similar result was obtained for these species by Wassie Anteneh (2005) in the samples taken from Dirma and Megech tributary rivers of Lake Tana and Naglekerke *et al.* (1994) in the lacustrine samples of Lake Tana.



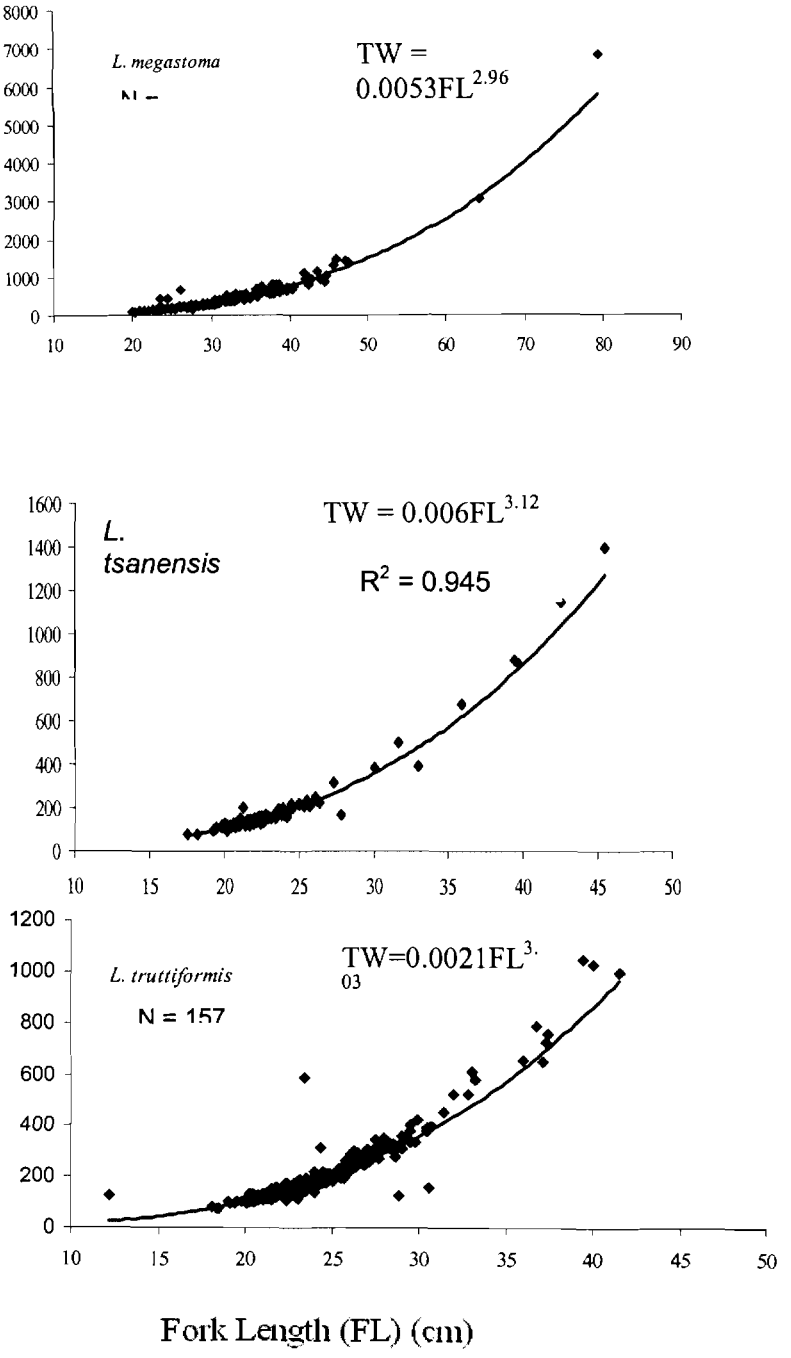


Fig. 2. Length-weight relationship of *Labeobarbus* species of Lake Tana spawning in Ribb River.

Role of *Labeobarbus* spp in the food web of Lake Tana

We will specifically deal with the role and position of the *Labeobarbus* spp. in the food web of Lake Tana because they are the ones that migrate and have direct relation with the proposed dam.

Eight species of the fifteen endemic *Labeobarbus* spp. (more than 65 % of all labeobarbs) are piscivorous: two are obligate piscivorous (*L. acutirostris*, *L. truttiformis*) and six facultative piscivorous (*L. dainellii*, *L. gorguari*, *L. longissimus*, *L. macrophtalmus*, *L. megastoma*, *L. platydorsus*) (Sibbing & Nagelkerke, 2001). Experiments showed that these piscivores are very clumsy predators, most probably because they have a narrow pharyngeal slit and lack teeth on their oral jaws (de Graaf 2003). Most probably these species can only survive because specialised and more efficient non-cyprinid piscivores are lacking. The piscivorous niche of these co-occurring species is segregated by habitat, diet composition and prey size (de Graaf et al., 2004). The main prey items eaten were *B. humilis* (40 % of the gut contents), *B. tanapelagius* (32 %) and *Garra* species (21%). Therefore, the two small barbs form the main link between the zooplankton and the piscivorous fish in the food web of the Lake.

Besides piscivores, there are five other trophic groups of labeobarbs. One species feeds on macrorophytes (*L. surkis*), one upon macrophytes and molluscs (*L. gorgorensis*), one species on macrophytes and adults insects (*L. osseensis*), one species predominantly on zooplankton (*L. brevicephalus*) and four species are benthivorous feeding mainly on chironomid larvae and on macrofauna associated with macrophytes (*L. crassibarbus*, *L. intermedius*, *L. nedgia*, L. *tsanensis*). If there is any decline or reduction in the stock of large barbs, then the energy and the functioning of the lake-floodplain-river ecosystem will be disrupted. It is obvious that unless strict mitigation measures are taken the proposed dam will reduce the stock of labeobarbs in Lake Tana and hence disrupt the food web therein.

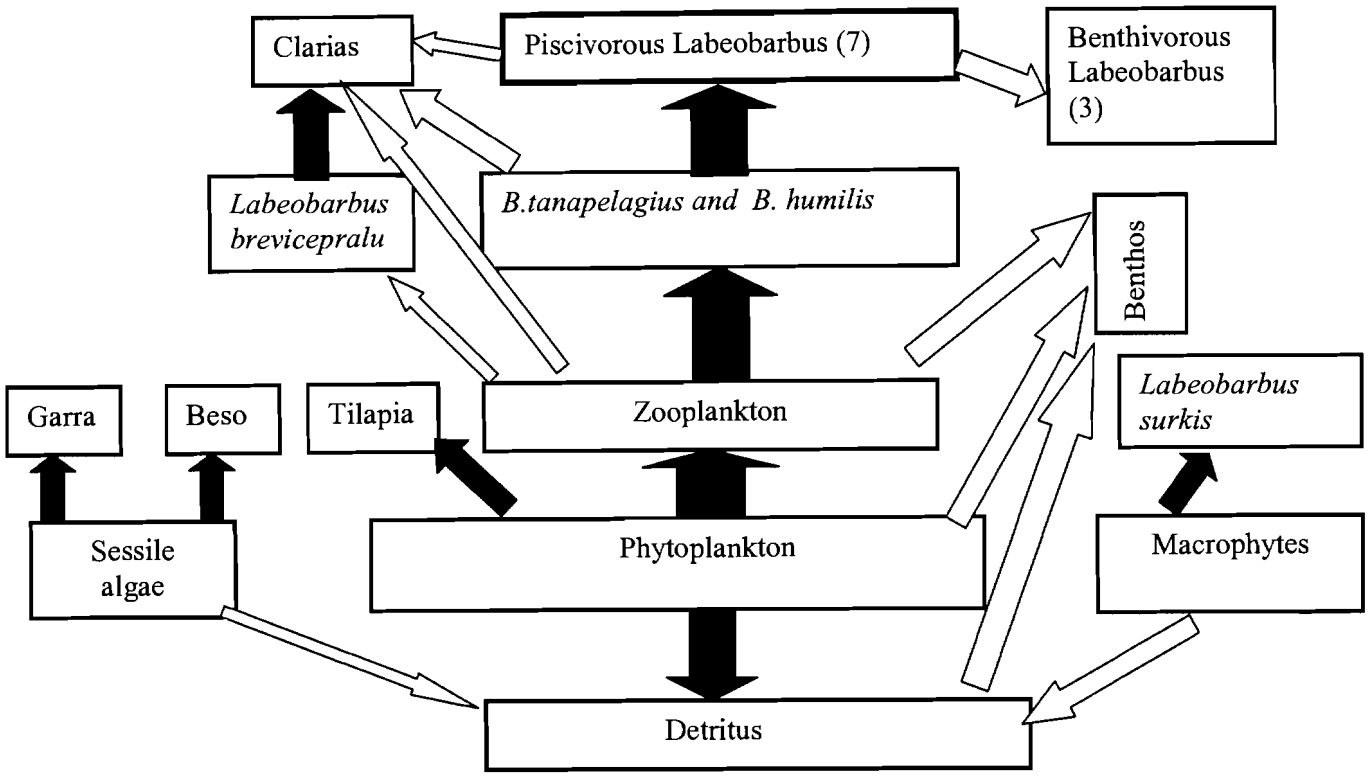


Fig. 3. Simplified food web of Lake Tana

Gonad Maturity Status and Migration Behavior of *Labeobarbus* spp.

Gonad maturity stages were classified using keys as given in Table 2. From the total of 2075 *Labeobarbus* specimens, only 297 were immature (gonad stages I, II and III), whereas 887 specimens were mature (gonad stages IV, V). Eight hundred thirty five specimens of *Labeobarbus* species were running (gonad stage VI) and 53 were spent (gonad stage VII). Immature gonads (I, II, III) were relatively more numerous in case of *L. intermedius* as compared to other *Labeobarbus* species (Fig. 3). The data also showed that about 85 % of the *Labeobarbus* species were either reproductively mature or running. Fish with gonad stage V were only caught at the Ribb River mouth in all the species of *Labeobarbus* (Table 7). As indicated in Table 7, the majority of *Labeobarbus* specimens collected in the upstream sampling sites were running i.e.,

they shed their eggs and sperm when their abdomens were slightly pressed. No running specimens were caught at the river mouth. All of the 53 spent *Labeobarbus* fish were caught in the upper main channel and small tributary rivers of Ribb River. Spent gonads were common in the samples collected at the end of October (Fig. 4).

Gonad development precedes spawning migration in most fish species and it is under endocrine control from the pituitary gland and this gland requires a triggering environmental factor (Payne, 1986). In the temperate zone, variation in day length is a major triggering environmental factor for gonad maturation, but in the tropics, most probably the variation is insufficient to be considered as a major factor (Wootton, 1990). However, like spawning period, the timing of gonad maturation must generally coincide with the time of reasonable food supply, which means the fish must lay down so much fat over the feeding phase for its survival and gonad development (Payne, 1986; Wootton, 1990). Migration to the breeding area, for tropical freshwater fishes, seems mainly triggered by rainfall patterns and water level variations (Lowe-McConnell, 1975).

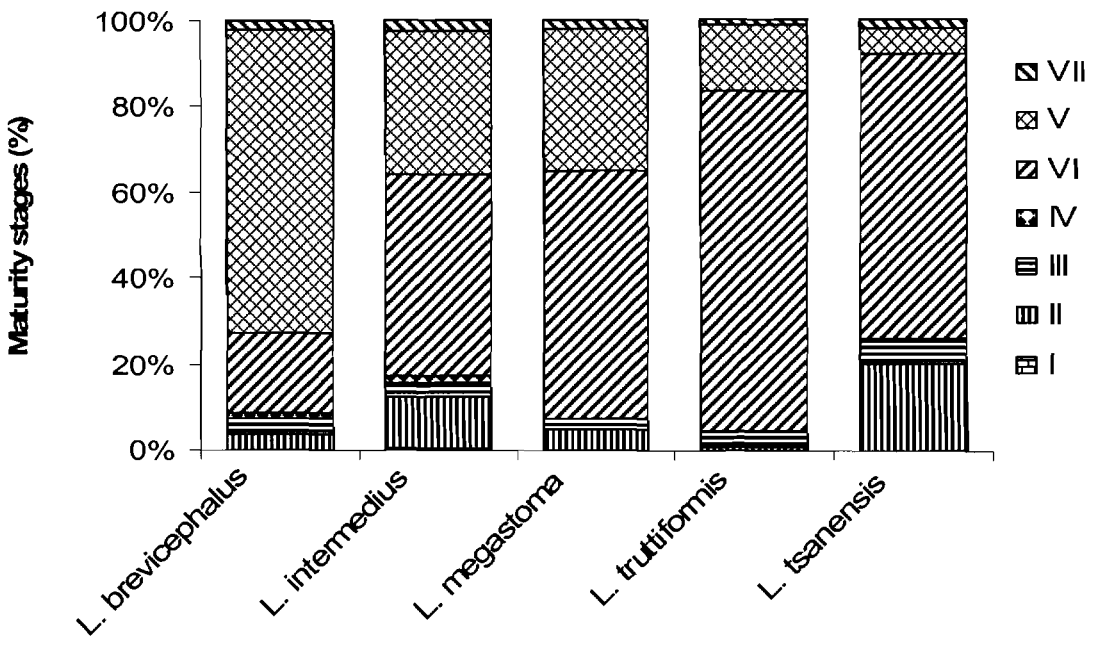


Fig. 4. Maturity stages in the most common *Labeobarbus* spp.

The absence of running (gonad stage VI) *Labeobarbus* fish at Ribb river mouth (Table 7) shows that the river mouth is not a terminal spawning place, rather the fish species aggregate there to start migration to upstream areas. More than 96% of the specimens in the genus *Labeobarbus* in each particular species in the upstream area, except *L. intermedius*, were either running or spent; the remaining were immature.

Table 7. Spatial distribution of gonad stages of the *Labeobarbus* spp. of Lake Tana spawning in Ribb River.

Sampling site	Gonad Maturity stages						
	I	**II**	**III**	**IV**	**V**	**VI**	**VII**
RM	0	101	222	0	867	0	0
MC1	3	24	48	1	0	132	15
CH	0	5	9	0	0	108	4
SH	0	14	3		0	46	0
KI	0	0	0	2		115	2
KE	0	8	6	2	0	119	1
MC2	0	9	6	4	0	27	7
BA	0	2	6	7	0	126	5
MC3	0	0	10	0	0	34	12
HA	0	10	0	5	0	76	0
MC4	0	2	2	0	0	19	3
ME	0	0	1	0	0	12	0
MC5	0	1	5	0	0	21	4
Total	**3**	**176**	**118**	**21**	**867**	**835**	**53**

Most large cyprinids of Africa spawn by making a single annual breeding migration to upstream areas of rivers (Lowe-McConnell, 1975; Tómasson *et al.,* 1984). This is the best indication that they are not fully adapted to the lake environment. From the previous studies conducted at four tributary river mouths (Gelgel Abbay, Gelda, Gumara, and Ribb), this ancestral (riverine) reproductive strategy is found to be a

characteristic for at least seven *(L. acutirostris, L. brevicephalus, L. macrophthalmus, L. megastoma, L. platydorsus, L. truttiformis,* and *L. tsanensis*) of the 15 *Labeobarbus* species of Lake Tana. The remaining 'missing' *Labeobarbus* spp. might possibly migrate and spawn in other inflowing rivers (Dirma, Megech, and Arno-Garno), or maybe even within the lake itself (lacustrine spawning) (Nagelkerke and Sibbing, 1996; Palstra *et al.*, 2004; de Graaf *et al.*, 2005).

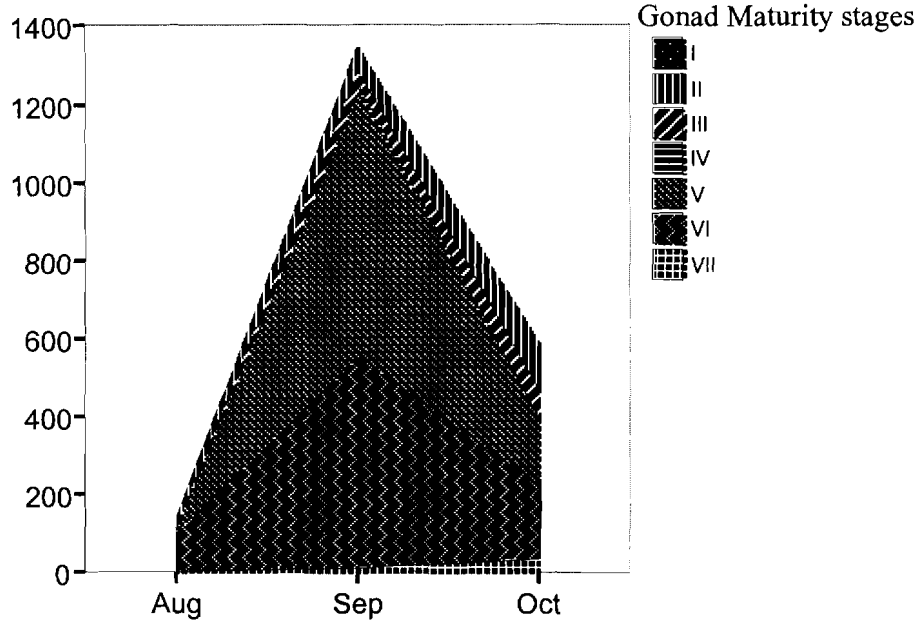


Fig. 5. Temporal variation of gonad stages of *Labeobarbus* of Lake Tana in Ribb River.

The migration pattern of Lake Tana's riverine spawners *Labeobarbus* species is partitioned into three major phases:

(1) migrating from the foraging area of the lake to affluent river mouths;

(2) migrating upstream in the rivers' main channels; and

(3) entering a tributary for spawning after sunset.

Heavy rainfall usually starts in May and peaks in July and August in the Lake Tana area (Tesfaye Wudneh, 1998; Eshete Dejen, 2003). During this time the tributary rivers increase in volume and cause massive soil erosion. As a result of the inflow of sediment and dissolved organic compounds, turbidity, increased water level, or a combination of both is hypothesized to serve as environmental cues to trigger

spawning migration of *Labeobarbus* species to river mouths and upstream areas (Sibbing *et al.*, 1998).

Spawning Segregations

Spatial segregation

The relative contribution of each *Labeobarbus* within the sampling sites is shown in Table 6. Two species of *Labeobarbus* (*L. intermedius,* and *L. brevicephalus*) were the most abundant at the river mouth, in the main channel and tributary streams. However, from all the upstream sampling sites of Ribb River, *L. brevicephalus* was mostly common in the tributaries, particularly in Keha, whereas *L. intermedius* was most abundant in the Ribb main channel, especially at the Bahir Dar- Gondar Bridge site (Fig. 5). *L. megastoma* was common in the tributaries such as Barya, Keha and Hamus Rivers but *L. tsanensis* and *L. truttiformis* were rare in the upper tributaries of Ribb although they were commonly caught at the river mouth.

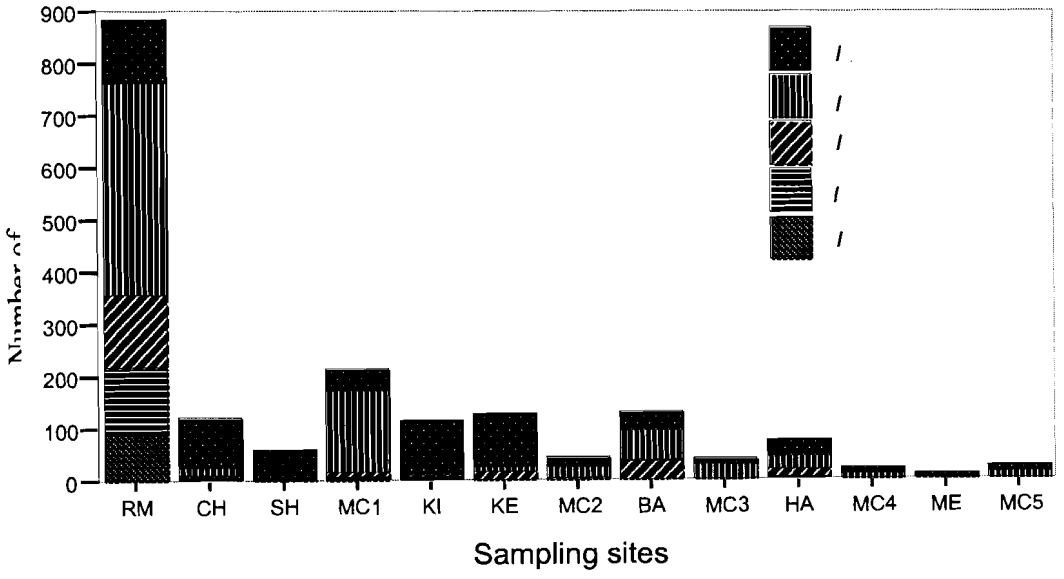


Fig. 6. Spatial segregation of *Labeobarbus* species of Lake Tana spawning in Ribb River.

In spite of the fact that tropical cyprinids in general lack parental care and other adaptations like viviparity or aestivation (Harikumar *et al.*, 1994), they have certain requirements in choosing their spawning places. Fast flowing, clear, highly oxygenated water, and gravel-bed streams or rivers are preferred places for *Labeobarbus* (Rodriguez-Ruiz and Granado-Lurencio, 1992). These conditions are important for the growth of the larvae (Tómasson *et al.*, 1984). Deposition of eggs in the gravel or pebble beds protects the juvenile from being washed away by riffle, and clear water will not prevent diffusion of oxygen. Previous studies (Alekseyev *et al.*, 1996; Nagelkerke and Sibbing, 1996; Dgebuadze *et al.*, 1999; Palstra *et al.*, 2004) on spawning migrations of Lake Tana's *Labeobarbus* were focused on Gumara River as it was considered as ideal breeding ground. On the other hand, Ribb River was not found to be a good breeding ground since neither of the above conditions was assumed to be available. According to some authors no *Labeobarbus* species migrate to the upstream reaches of this river (Palstra *et al.*, 2004) even though some species aggregate at the river mouth (de Graaf *et al.*, 2005). It was also stated that the breeding ground of these aggregating species at the Ribb River mouth was unclear (Wassie Anteneh, 2005). However, this confusion (whether there are *Labeobarbus* migrating to Ribb River or not) has now become clear after this study which designed broad spatial coverage including several tributaries of Ribb River. At least five species of *Labeobarbus* (Table 6) migrate to the upper stretches of Ribb River for spawning as deduced from their gonad maturity status (being the majority were with ripe gonads (Fig. 3). Ribb River provides ideal breeding grounds for the *Labeobarbus* of Lake Tana, even better than Gumara River, since it has many tributary streams with clear water and dissolved oxygen and gravel bedded bottom profile. Therefore, the *Labeobarbus* species of Lake Tana after making brief pre-spawning aggregation at the Ribb River mouth finally mature and spawn in the tributaries or possibly at gravel reaches of the main channel. The extent of migrations is now believed to be the upper most reaches of the main river and its tributaries, although our sampling was restricted to Mello River and its environs (some 15 km above the dam site). Therefore, it is quite evident that the construction of the dam obstructs the migration of the spawning *Labeobarbus* spp.

Temporal segregation

The pattern or sequence of aggregation of *Labeobarbus* species in the Ribb River differ, except *L. intermedius*, over the spawning months (August to October). *L. megastoma* was the first to aggregate at the river mouth starting in the first week of August and reaching peak in the beginning of September. *L. truttiformis* and *L. tsanensis* followed *L. megastoma,* in which they started to aggregate in the last week of August; however aggregation reached its peak in the beginning of September. *L. brevicephalus* started to aggregate in September and its peak was in the middle of October. *L. intermedius* didn't show significant variation (x^2, $P<0.05$) in its temporal segregation pattern during September and October. A similar temporal segregation pattern was observed in Dirma, Megech (Wassie Anteneh, 2005) and Gumara (Palstra *et al.,* 2004) Rivers, which are tributaries of Lake Tana.

Suitable Spawning Habitats in the Ribb River and its Tributaries

Most African Barbs occur in rivers and generally *Labeobarbus* spp., including lake dwelling species, are considered to be riverine spawners, that migrate upstream to spawn in shallow gravel beds, in fast flowing, oxygenated and clear small rivers. Detailed information on gonad development, peak breeding period, spawning area and size at maturity of each of the 15 species was, until recently, scarce, fragmented and sometimes unreliable due to limited sampling. Although previous researchers, based on small sample and inappropriate fishing gears and methods, have reached to a wrong conclusion that Ribb River is not an ideal place to *Labeobarbus* spp. spawning, Ribb River is well oxygenated at its upstream portion and has more than 10 tributaries which are suitable grounds for spawning.

Highly oxygenated water and gravel beds are general requirements for *Labeobarbus* spawning due to their critical importance in the development of eggs and larvae. Deposition of eggs in gravel beds prevents them from being washed away and clear water cover them with a film of sediment obstructing the diffusion of oxygen. Final maturation and spawning of *Labeobarbus* spp. occur in the tributaries and for some large species possibly at gravel areas in the far upper reaches of Ribb's main channel. This is deduced from the distribution of running females.

Moreover, some pools across the main river channel serve as habitats for feeding and reproduction of river resident *Labeobarbus intermedius* and *Labeobarbus nedgia*. This has become evident since mature fish of the above species were caught from the pools on the main river channel during the last sampling period (last week of October).

Ribb River is evidently an ideal spawning area for *Labeobarbus* spp. than any other tributary river of Lake Tana, including Gumara River, which has been thoroughly studied for *Labeobarbus* migration. This is mainly due to the high number of tributaries inflowing into the Ribb River.

Ribb River originates from Gunna Mountain around Kimir Dengay area of South Gonder Zone. It has a distance of 90 km and crosses Farta, Ebenat, Libokemkem and Fogera Woredas of South Gondar. Ribb River is located on the east side of Lake Tana, has a drainage area of about 1790 km^2 and, with its tributaries, forms a watershed on the western slope of the high mountainous area east of the town of Debre Tabor. It has rapids and gravel bed in the upstream area and it becomes slow flowing with silt load at the down stream in Fogera Woreda (around main bridge from Bahir Dar to Gondar).
Several tributaries feed the main channel and the major ones are listed in Table 8.

All the tributaries and upstream main channel can be considered as suitable breeding habitats for *Labeobarbus* spp. Those sites below the dam could be used by the fish population migrating from Lake Tana.

The possible extent of the spawning habitats is estimated from the length of the main river and the tributaries. The lengths of the 8 tributary rivers below the dam (excluding some small rivers that dry off during the dry season) is about 151.5 km. The length of the main Ribb River below the dam is about 50 km and the total suitable habitat for spawning below the dam site that need to be managed is about 201.5 km.

The spawning habitat above the dam site includes the length of the main Ribb River above the dam (about 40 km) and the tributaries (Nine rivers excluding those

temporary small streams) above the dam site which totals to about 105 km. The total length of suitable habitat for spawning above the dam is, thus, about 150 km.

Table 8. Tributaries of Ribb River and the distance from their origin to the main channel (sampled sites are shown in bold).

Name of the tributary	Distance in kms	Position in reference to dam
1. Hamus Wanz	**11**	**Above**
2. Melo	**16.5**	**Above**
3. Selamko	8	Above
4. Wayibla	9	Above
5. Karbit	7.5	Above
6. Kzefin Selamiko	6.5	Above
7. Meher	24.5	Above
8. Kentay	10	Above
9. Dabzut	12	Above
10. Barya	**21**	**Below**
11. Chibirna	**15**	**Below**
12. Kirarign	**32**	**Below**
13. Shini	**27**	**Below**
14. Keha	**20**	**Below**
15. Zeha minch	**10.5**	**Below**
16. Kechin Wenz	**11.5**	**Below**
17. Dangora	**14.5**	**Below**

Therefore, the total estimated length of spawning habitat along the main Ribb River and its tributaries is 351.5 km. The area below the dam contributes 57.3 % of the total while the spawning habitat above the dam contributes 42.7 % of the total.

It has been estimated that 48 % of the fish production from Lake Tana that landed at the Southern Gulf (about 1000 tons) is contributed by the fish caught from the Ribb River mouth and its surroundings. This is about 480 tons contributed by mainly Nile tilapia, cat fish and *Labeobarbus* spp. The contribution of *Labeobarbus* spp. is 20 % of the total catch, which is about 100 tons per year. It is reasonable to estimate, thus, that about 60 tons (57.3%) could be from fishes that spawn below the dam and 40 tons (42.7%) fish production could come from fishes that spawn above the dam. Therefore, the inability for the fishes to migrate past the dam site could bring about an estimated loss of about 40 tons of fish production per year from Lake Tana. However, if proper management measures are not taken on the main river and the tributaries below the dam site, and the water level of the main river and its tributaries fall below the level required for the migration of the species as well as inundating the wetlands, it could result in an estimated loss of about 480 tons of fish per year from Lake Tana. This is because any negative measures on the wetlands and the main Ribb River could affect the migratory species as well as Nile tilapia and catfish that have their main breeding ground on the wetlands. In monetary terms 480 tons is about Birr 1440000/year (producer's rate) or Birr 5280000/year (retailer's rate).

The above estimate is based on the amount of catch that landed at the southern gulf which is one-tenth of the estimated potential of Lake Tana (estimated potential is about 10000 tons). Therefore, the potential monetary loss could roughly be estimated to Birr 50280000.

The number of fish that are migrating to and from Ribb River and its tributaries could be estimated from the actual production of Lake Tana that is contributed by *Labeobarbus* spp. from Ribb River mouth and sourrounding areas which is about 100 tons (100,000 kg) per year. It can reasonably be suggested, thus, that about 200000 adult individuals (an individual adult weighing, on the average, about 500 grams) of *Labeobarbus* species migrate to and from Ribb River. Of this, about 115000 individuals may spawn below the dam while about 75000 individuals spawn above the dam.

On the other hand the dam will create an artificial lake. This new reservoir will be an ideal new habitat that will increase fish production per unit area. Those migrating fish residing in the reservoir after damming will have spawning habitats on the main river channel and tributaries located above the dam such as Hamus and Melo Rivers.

The proposed irrigation area is located in the plain in the middle Ribb valley on both sides of the Addis Zemen-Wereta road. Water released from the Ribb Dam will be diverted to the irrigation sites by a weir built close to the irrigation sites. The total irrigable command area identified is 19,925 ha, and the total net irrigable area on both banks of the river is estimated to be 14,460 ha (BoWR, 2007).

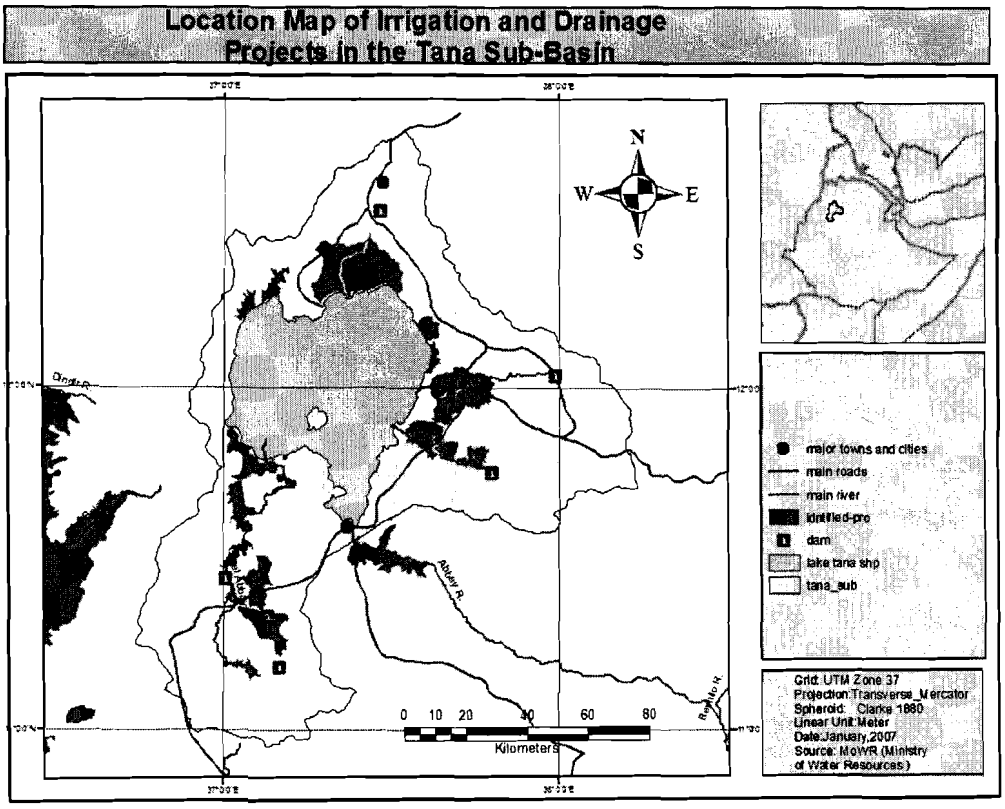


Fig. 7. The planned dam site on Ribb River and the reservoir area (Source: BoWR, 2007).

Farmer's use of fish from Ribb River and its tributaries

The interviews with the farmers around up stream Ribb River and its tributaries indicated that spawning migration of fishes of the *Labeobarbus* spp. occur from July to end of September. Almost all respondents consume fish. They usually start fishing activities in the river and its tributaries at the end of the 16 days fasting period yearly (from August 26 on wards). They start during this time because in most cases the water level starts to lower. They fish for their own consumption and as a gift for relatives. All of the respondents are aware that the fish is coming up-stream from Lake Tana during the rainy season.

Farmers who are living in the flood plain around Ribb River have no such tradition of collecting fish from the river. They have rather a culture of hunting big catfish (they call it "Sorz") using spear in the flood plain at night during the rainy season. They dry it and use it, as they do for meat of other animals, as "Quanta". Recently, dried fish market in Sudan is attracting a lot of people to the business.

Ribb River seasonal fishery is mainly for household consumption and as a gift for friends and relatives. The fish catch data from Ribb River is not available. However, estimates can be made from the observations we had and interviews made with the farmers. Accordingly, fishing activity takes place at about 12 sites along the stretch of the river. It takes place for about two months (from 26 August to 26 October). On average they do fishing 5 times at each site for the two months. They estimated their daily catch up to 25 fish/night/site (about 50 kg/night/site). In total about 360 quintals of fish could be harvested from the river annually. Although, apparently, the catch from Ribb River has very insignificant contribution to the livelihood of the farmers there, it has to be noted, however, that almost 100% of the fish caught are ripe (breeding) adults. This will have, ultimately, negative consequences on the population of the fish species in Lake Tana.

There is no as such any technical assistance (extension service) for the local community with regard to utilization and management of the fish resource. There is no any modern fishing gear in the area. They use traditional fishing gear and methods. They have locally made scoop nets; they block the river when the water level is relatively low and leave narrow outlet to catch the fish with their scoop net. They also use seeds of the poisoning plant called *"birbira"* (*Milletia ferruginea*); and

this fishing activity is performed from September on wards when the water level is getting lower. Fishing is mainly performed by men and adult children. Women are responsible for cooking.

There are no full time fishers in the area. It is a part time activity and seasonal. Local communities reported that fish catch is declining from time to time. Most of the respondents are willing to cooperate in any measures that would lead to sustainable utilization of the fish resources. They are also eager to get modern fishing gear like gillnets.

Farmers identify some of the fish species with their local names: "Sofia" (*L. intermedius*), "Dubia" (*V. beso*), "Quashena" (*L. megastoma*), "Bora" (any other large size *Labeobarbus*), "Ambaza" (*Clarias gariepinus*, catfish- they don't consume it and also according to them it is not a fish), "Koroso" (*Oreochromis niloticus*, Nile tilapia). They very well understand that there is diversity of fish in Ribb River. Almost all of the respondents said that more than 98% of their catch is composed of *Labeobarbus spp.*

The river and its tributaries provide several services, serving as source of fish, water for human and animals, traditional subsistence irrigation, sand extraction and spiritual (holy water) services. Valuation of the contribution of Ribb River for its services and products is beyond the scope of this study.

The Contribution of Ribb Fishes to Lake Tana Fish Ecology and Production

Previous researchers assumed that Ribb River is not as such important spawning ground for barbs. Their main reasons for this wrong conclusion were that it is very turbid, with low oxygen content and lack tributaries. However, our empirical evidence unwaveringly confirm that there are about seventeen tributaries of Ribb River and at least eight *Labeobarbus* species migrate into these tributaries and the main Ribb River from Lake Tana during the rainy season for spawning purposes. There could also be some permanent resident species in the river (*Labeobarbus intermedius* and *Labeobarbus nedgia*), although this is not supported by continuous sampling and published information. At this time, fishers employ traditional fishing techniques (at the river mouth, upstream and tributaries) to catch these fish mainly for household consumption.

Data collected at the gulf of Bahir Dar from two sources (Tesfaye Wudneh, September 1991-August 1993; and de Graaf from September 1999-August 2001) were used to compare catch trends and relative contribution of each area. The West coast, the East cost and Ribb River mouth areas have complete recorded data and they could represent the gulf fishery activity (300 km^2 of the lake).

The pattern in spatial difference in Catch Per Unit of Effort (CPUE) for the *Labeobarbus* spp. was the same in two periods where the West coast was lower than the East coast and both of them were lower than Ribb River area. The West coast was 16% lower during the first period and 18% during the second. African catfish CPUE was lower (51 kg/trip or 24%), at the East coast during the first period and, 25.27 kg/ trip (25%) at the West coast, during the second period. The CPUE value of Ribb River was reduced from 98.7 to 49.5 kg/trip but its contribution increased from 46% in the first to 48% in the second period.

The CPUE was reduced in all areas during the second period for *Labeobarbus* spp. and African catfish. But the mean CPUE (kg/trip), increased at the West and East coasts in the second period for Nile tilapia. The CPUE, irrespective of the periods, was seen high in Ribb River when compared with the other two areas for all the three species.

In individual species the catch differed in place and time between the two periods. During the first period the catch was very high for *Labeobarbus* spp. than the other species in the East coast and Ribb River areas. Its contribution was 36% in the Ribb River alone. The quantity of *Labeobarbus* spp. caught during the second period was reduced by three folds (from 60 to 15 kg) around the East coast and its contribution lowered to 22 % at the river mouth area. African catfish (*Clarias gariepinus*) catch also lowered during the second period when compared to the first in all areas. In general, the contribution of *Labeobarbus* spp. and African catfish in all areas was higher (35% for each) during the first period, but in the second period it dropped to 17 and 26% for *Labeobarbus* spp. and catfish, respectively.

The effect of fishing area on the catch rate was similar for the three commercial species where high CPUE was observed in the Ribb River area in both periods. This is

due to the suitability of this site to fish species for breeding and protection as well as productivity of the area as the inflow water carries nutrients. Fishing around the rivers during the breeding season of *Labeobarbus* spp. results in an increase in the CPUE. The *Labeobarbus* spp. aggregate at the river mouth during their spawning period. Some species like African catfish show ecological flexibility, have broad diet spectrum and occupy habitats ranging from the offshore to the littoral areas in the lake, to floodplains and to rivers upstream.

In conclusion, Ribb River contributes 48% of the catch in the southern gulf that makes it very important river for the fisheries of Lake Tana. Its ideal breeding and feeding ground makes it an important ecosystem that plays great role in the functioning of Lake Tana ecosystem.

Species Composition of *Labeobarbus* spp. from Lake Tana (based on experimental fishing data)

Twenty of the 27 fish species of Lake Tana are endemics to the Lake Tana catchments. This speciation was possible because the incipient lake offered new habitats for adaptive radiation and maintained its isolation, since 5 million years before present, from the lower Blue Nile basin by 40 m high falls at Tissisat. The 15 endemic *Labeobarbus* spp. belong to a unique species flock of endemic cyprinids. Since the lake dried up between 18,700 and 16,700 years before present, the evolution of these *Labeobarbus* probably took only 15,000 years or less. Surprisingly eight of these are piscivores and most of them are periodically migrating into inflowing rivers for spawning.

Bahir Dar Fisheries and other Aquatic Life Research Center conducted monthly fishing experiment using gillnet of 6, 8, 10 and 12 cm stretched mesh size of 100 m long from January 2000-December 2004 (Table 9). There is temporal and spatial variation in abundance of the different fish species in Lake Tana. Their habitats are mainly classified as River mouth, Inshore and Offshore habitats.

Table 9. Species number and percentage composition pooled from all monthly samples per site from January 2000 to December 2004 (BAFLRC, 2007).

	River Mouth				Inshore habitat				Deep water habitat			
	Abbay		Dirma		Gerima		Gedamat		Sekela		Zegie	
Species	No	%	No	%	No	%	No	%	No	%	No	%
L. acutirostris	229	4.5	108	3.3	35	2.4	29	2.8	26	0.9	66	6.3
L. brevicephalus	383	7.4	360	11	203	13.5	57	5.4	309	10.8	302	28.8
L. crassibarbis	75	1.5	51	1.6	8	0.5	16	1.5	23	0.8	45	4.3
L. dainellii	0	0.0	5	0.2	8	0.5	24	2.3	9	0.3	1	0.1
L. gorgorensis	46	0.9	26	0.8	13	0.9	11	1.1	48	1.7	9	0.9
L. gorguari	0	0.0	4	0.1	0	0	13	1.2	2	0.1	0	0
L. intermedius	2338	45.4	374	11.4	259	17.2	177	16.9	116	4.1	286	27.2
L. longissimus	29	0.6	2	0.1	13	0.9	9	0.9	7	0.2	4	0.4
L. macrophtalmus	78	1.5	18	0.6	6	0.4	14	1.3	40	1.4	21	2.0
L. megastoma	203	3.9	135	4.1	45	3	29	2.8	25	0.9	14	1.3
L. nedga	76	1.5	3	0.1	10	0.7	20	1.9	0	0	16	1.5
L. platydorsis	165	3.2	46	1.4	9	0.6	8	0.8	107	3.8	72	6.9
L. surkis	19	0.4	114	3.5	33	2.2	60	5.7	6	0.2	0	0
L. tsanensis	131	2.5	1127	34.4	23	1.5	175	16.7	1039	36.4	148	14.1
L. trutiformis	19	0.4	72	2.2	23	1.5	175	16.7	4	0.2	7	0.7
O. niloticus	731	14.2	451	13.8	594	39.5	101	9.6	10	-	7	0.7
C. gariepinus	559	10.9	380	11.6	157	10.5	98	9.4	49	1.7	52	5
V. beso	68	1.3	34		63	4.2	32	3.1	4	0.2	0	0

At the river mouth, *Labeobarbus intermedius* and *Labeobarbus tsanensis* were the predominant species. In the inshore habitats *Oreochromis niloticus* is the most abundant followed by *Labeobarbus intermedius* and *Labeobarbus tsanensis*. In the offshore habitat *Labeobarbus tsanensis* and *Labeobarbus brevicephalus* are the dominant species.

Table 10. Species composition of the *Labeobarbus* species in Lake Tana.

Species	Contribution (%)
L. acutirostris	4.5
L. brevicephalus	18.2
L. crassibarbis	2.2
L. dainellii	0.8
L. gorgorensis	1.5
L. gorguari	0.3
L. intermedius	28.6
L. longissimus	0.8
L. macrophtalmus	1.6
L. megastoma	4.0
L. nedgia	1.3
L. platydorsus	3.6
L. surkis	2.9
L. tsanensis	24.7
L. truttiformis	4.9

Six species dominated in the experimental data of the *Labeobarbus* spp. These are: *L. intermedius, L. tsanensis, L. brevicephalus, L. truttiformis, L. acutirostris* and *L. platydorsus*.

The data collected from the Commercial Fisheries recognize only four species groups. The four main species groups recognized by the commercial fishery are a species flock of endemic, large *Labeobarbus* spp., African catfish (*Clarias gariepinus*), Nile tilapia (*Oreochromis niloticus*) and Beso (*Varichronious beso*).

Fish Catch Trends from Lake Tana

In addition to the artisanal, predominantly subsistence fishery conducted from reed boats, a motorized commercial gillnet fishery was introduced in 1986. The three main species groups targeted by this fishery are a species flock of endemic, large *Labeobarbus* spp., African catfish (*Clarias gariepinus*) and Nile tilapia (*Oreochromis niloticus*). The commercial gillnet fishery of Lake Tana developed rapidly in that the total catch increased from 39 tones in 1987 to 360 tones in 1997. After 1996, there is no data on the commercial gillnet fishery. The Bureau of Agriculture and Rural Development is the responsible body to collect this information. Reed boat fishery data was also collected by the Lake Fisheries Development project from 1987 to 1996. The annual catch fluctuated and reached its peak in 1994.

Table 11. Fish catch data in tons for Motorized and Reed Boat fishery in Lake Tana (LFDP, 1997)

Year	Reed boat catch (ton)	Motorized boat catch (ton)	Total	Percentage contribution of reed boat fishery
1987	522	348	870	60
1988	865	280	1145	80
1989	1,109	360	1469	80
1990	945	307	1252	80
1991	645	250	895	70
1992	602	202	804	70
1993	773	252	1025	80
1994	1,157	357	1514	80
1995	663	231	894	70
1996	756	237	993	80

The majority of the catch comes from the traditional reed boat fishery. The introduction of commercial gillnet fishery didn't bring significant effect on the traditional fishery because it focuses mainly on fish collection from fishers rather than fishing. Moreover, the number of boats and fishers operating did not increase significantly from year to year. The following total fish catch from Lake Tana was estimated by the Regional Bureau of Agriculture and Rural Development.

Year	**Annual Catch (tons)**
2003	1,068
2004	1,231
2005	1,281
2006	3,004

In the 1990's species composition of the commercial catch was *Labeobarbus* spp. (40%), African catfish (*Clarias gariepinus*) (25%) and Nile tilapia (*Oreochromis niloticus*) (35%). In 2007, the species composition has shifted into 64%, 21% and 15% of Nile Tilapia, Catfish and *Labeobarbus* species, respectively. The data indicates sharp decline of the endemic *Labeobarbus* species which needs serious attention for the sustainable development of Lake Tana fishery.

Fish Production and Marketing from Lake Tana

Lake Tana is the largest lake which accounts 50% of the total inland water of the country. The lake at this moment is not fully exploited. Using different fish production potential prediction models, the annual maximum sustainable yield is about 7,000-15,000 tons. This prediction is based on the assumption that the reproduction of fish is not affected by anthropogenic factors. This estimate should, therefore, be updated based on current fish catch and effort data.

If we assume that the safe annual maximum sustainable yield is about 10,000 tons and we produced 3,000 tons in 2006, we are exploiting only 30% of the lake potential. Based on the actual exploitation of the lake a fish processing factory by Ashraf Industrial Business Group is being finalized at the southern gulf of Lake Tana to process 3,000 tons of fish per year.

The Fish Production and Marketing Enterprise (FPME) is the only market outlet available for Lake Tana fishery. This reduces the opportunities for fishers to negotiate a reasonable price for their fish. The others are distributing fish only to local consumers to satisfy the local demand using the basic market channel (landing point to consumer). This provides reasonable price to consumers and reasonable return to intermediaries due to almost null cost of transportation and other additional costs to reach consumers.

However, it is not the same situation at all corners of the lake. In the northern part of the lake, for example, there is limited access to market as the landing sites and towns are far apart. Here, transportation of quality fresh fish to the nearby market is a critical and limiting factor. Thus, the price of fish is lower for the whole sellers and for the fishers alike. The southern part is different in that the fishers have good access to the potential traders and market because of its vicinity to the town of Bahir Dar and the existence of FPME, cooperatives and other traders around.

The main supplier of fish from Lake Tana to Addis Ababa is the FPME. About 30% of the fish handled by FPME nationally is sourced from Lake Tana. This represents about 300-400 tons/annum (weight of whole wet fish). Recently, traders from around Lake Tana started exporting dried fish to Sudan. Most traders in dried fish marketing are illegal. Only 3,858 quintals of dried fish was exported legally to Sudan. Marketing of dried fish is attracting a number of fishers in the Lake Tana area.

The price of fish remained very low until 2004 and was being sold 0.8 Birr/kg which was 10% of the price of beef in the area. Then it increased dramatically and currently, it is fetching higher price, at least 50% of the beef price.

Table 12. Fish prices at Bahir Dar: ETB/Kg (FPME, 2007)

Type	Tilapia		Catfish		*Labeobarbus*	
	Producer	Retailer	Producer	Retailer	Producer	Retailer
Wet whole fish	5	21	3	17	3	11
Dried fish			2	12.5	2	6.5

Due to high cost in the commercial fishery, the marginal gain does not permit the motorized fishery to expand even though the resource potential is high. It is, therefore, important to stress that the Lake Tana fishery finds itself in a unique and rather problematic situation. On the one hand, the fish stock present allow quite some intensification of the fishing pressure, while on the other hand, socio-economic and market conditions are too poor to invest on the resources. Hence, the government's objective to expand the motorized fishery can only be met by alleviating the latter constraint. In this respect promotion of fish consumption among the large public and bringing about higher per caput consumption rates are crucial. An increase of fishing effort should be coupled with or preceded by the appropriate fishery legislation and management regulation, to ensure biological sustainability of the fish stock and the environment.

The Nature and Number of Lake Tana Fishers, their Bases and Organizations

Fishing in Lake Tana started around 18th century by the "Negada-Woyito" community and then the other poor members of the community gradually adapted the activity. In 1986 the Lake Tana Fisheries Resource Development Program (LTFRDP) was initiated by the Interchurch Foundation for Ethiopia---ISE-URK (a Dutch Non Governmental Organization) in collaboration with the Ethiopian Orthodox Church and the Ministry of Agriculture. The program targeted assisting the poor fishers around the Bahir Dar Gulf area and nearby islands by introducing modern fishing gear and motorized boats.

The LTFRDP created new opportunities for the fishers, extending their fishing area from the shore to deeper, offshore waters and more importantly to distant river

mouths. Moreover, with the increase in catch, fish processing, marketing and net making activities emerged as job opportunities to the surrounding communities.

Currently, there are four major types of fisheries characterized by specific combination of gears and fishing crafts. These are:

1) The motorized gillnet (mesh sizes 10-12 cm) fishery based in Bahir Dar and now expanding in 10 bordering Woredas;

2) The traditional reed-rafts-gillnet (mesh size 6 to 10 cm) around the lake;

3) The traditional reed-rafts-gillnet (mesh size 10 to 12 cm);

4) The chase and trap fishery (mesh size 6 to 9 cm) based in the southern part of the lake. Whereas gears such as longline, castnet and traps are occasionally used but contributed very insignificant amount to the total fish catch.

Traditional reed boat fishery is still important for remote areas of the lake. Reed boat carries normally only one fisher. Catch is collected early morning. The catch from this fishery is used for selling at small markets in the village and for household consumption and they target mainly *Oreochromis niloticus* (Nile tilapia).

Traditional reed boats use local gillnets, hooks, line traps and sometime spears for catfish. The reed boats are 3-4 m long and 60-80 cm wide and have a life span of 2 years. They are made by the fishers themselves using locally available materials like papyrus. The boat can carry 5 nets of each 50 m long. The total number of reed boats is estimated to be about 400 (about 400 fishers). Reed boat fishers are not organized under an association or cooperative.

The recently introduced motorized fisheries mainly target bigger markets. This fishery is performed using engine boats with 100 m long gillnet of 10 to 14 cm stretched mesh size. The program of motorization was accompanied by the organization of the fishers in association and with subsequent technical training in net making, processing and engine maintenance. Steel boats are mainly used in the motorized boat. For the whole lake, there are about 25 motorized fishing boats, most of which land their catch in Bahir Dar (either directly or via collector boat).

Fishers are organized in associations for credit and technical provision. The "Tana Haik 1" fishing co-operative is the first that was established before 15 years in the Southern Gulf of the lake. "Georgis" and "Zege" "Fish for All" associations are recently organized associations and are currently functional. Other associations are now emerging across 10 surrounding Woredas. Each Woreda will have a minimum of 1 association with 80-120 members. In general it is estimated that 1,300 fishers will be organized in association with modern fishing methods.

Many cooperatives remain-some of them little more than producer groups not currently engaged in any cooperative enterprise, some still heavily-supported by government or by projects, but others (such as "Tana Haik 1" fishing cooperative) appear to be well-managed as producer cooperative enterprise. The latter has sought to incorporate smaller producers groups operating at Kebele-level, in a bid to improve efficiency and realize economies of scale.

The "Tana Haik 1" fishing co-operative has net making facility mainly run by women. Women members of the cooperative are engaged in net making and fish processing, whereas, men fishers are involved on fishing and engine/boat maintenance. This cooperative rents out motorized boats to its members on a full cost recovery basis.

In general, the lake fishery has employed more than 3,000 persons who are directly dependent on the major activities of fishing, marketing, and processing for their livelihood. It is also contributing in giving employment opportunity to women and other landless people like ex-soldiers other than the fishers (see Table 13).

Table 13. Dependents on the fishery sector that are directly involved in fishing and post harvest processing (Source: Sewmehon Demisse, 2003).

Activities	Households	Dependents	Total
Fishing	596	2384	2980
Fish trading (self-employed)	26	-	26
Fish processing employed in FPME and the cooperatives	52	208	260
Others (in other activities, net, gear, fishmeal, etc)	33	132	165
Total	**707**	**2750**	**3431**

Fishery Policy and Management

Recognizing the danger posed on most water bodies of the country, a National Fisheries Proclamation was ratified by the Federal Parliament in 2003. The document provides broad guidelines related to resource conservation, food safety and aquaculture. This document puts considerable emphasis on regulation, permits and specifies the role of the fishery inspector

It is obvious, too, that the Lake Tana fishery can benefit the fishing communities and the regional economy if it is utilized sustainably. It is, therefore, crucial to design management plans with clear objectives to utilize the fish resource in a sustainable way.

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Accordingly, the Amhara Region was the first region to develop its Regional Fisheries Proclamation in 2003. It covers similar issues as that of the national policy, but has an additional objective relating to the creation of employment opportunities in fishing communities. It also states that information, including research findings, should be made available to the fishing communities. As with the National Proclamation it relies heavily on regulatory measures (command and control) and the report of the fishery inspector.

After the Regional Fisheries Proclamation, implementation guidelines should be developed. It has been delayed for quite 3 years and in 2007 the Regional Parliament approved the Regional Fisheries Guideline. At a national level, guidelines have now been developed and submitted to the council of Ministers. It is surprising that it is still not endorsed at a Federal level where it affected the timely development of the Amhara Region Guideline. The Bureau of Agriculture and Rural Development is

mandated to the control and implementation of the fishery resource. The next step for it is to develop management plan for each water body. There are many methods available for the management of fisheries, including the use of closed seasons, closed areas, limitation of catches or fishing effort, property rights, taxation, catch quotas and mesh size regulation. Usually a management regime is some mixture of these and the concerned body will use those tools to utilize the water bodies of the region in a sustainable manner.

MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDED MITIGATION MEASURES

1. Major Findings and Conclusions

- *Labeobrabus* species of Lake Tana migrate to Ribb River for spawning purposes during the main rainy season (July-October).
- Eighteen species belonging to five genera and three families were identified from the thirteen sampling sites at the Ribb River mouth, main channel and tributary rivers. Thirteen of these species belong to the genus *Labeobarbus* that are known for their spawning migratory behavior.
- The highest number of specimens (50.14% of the total) was collected from the River Mouth site. This is a site where all migrating species aggregate before the onset of migration. The main channel at the Bridge between Bahirdar and Gondar town stands second in abundance of species, whereas the tributary rivers, Chibrna, Barya, Keha and Kirarign Rivers stood third, fourth, fifth and sixth, respectively.
- Five *Labeobarbus* species (*L. brevicephalus, L. intermedius, L. megastoma, L. truttiformis*, and *L. tsanensis*) make up about 75% of the total catch from Ribb River and its tributaries.
- Length-weight relationship in the five dominant *Labeobarbus* spp. migrating to Ribb River fit into the "theoretical" cube law; which means growth in these fish species is isometric (weight increases at a rate of about a cube of increase in length).
- Most of the *Labeobarbus* specimens collected during the study period were having gonads that were mature and running (ready to spawn). From the total of 2075 *Labeobarbus* specimens, 887 specimens were mature (gonad stages IV and V), 835 specimens were running (gonad stage VI) and 53 were spent (gonad stage VII).
- Based on the present and former studies (De Graaf, 2003; Palstra *et al.*, 2004; Wassie, 2005), conducted on the ecology and reproductive behavior of the

Lake Tana *Labeobarbus*, the migration pattern of most species can be partitioned into three stages:

1. Migration from the foraging area in the lake to Ribb River mouth,
2. Swimming upstream in the Ribb's main channel, and
3. entering to small tributaries of Ribb River.

- Mass spawning migration of the *Labeobarbus* species spawning in Ribb River occurs just after the peak of the rainy season, when average flow velocity in Ribb River had already decreased. This is most probably to escape the fast water current. These *Labeobarbus* species ascend about 50-60 km (probably more) to spawn in Ribb River and its tributaries although the spatial catch density of each species declines from the river mouth to Main Ribb channel and to upper tributary rivers.
- Micro-spatial segregation was not evident in this study i.e., those *Labeobarbus* species which spawn, for instance, in Chibirna River are also found to spawn in Barya or Hamus Rivers.
- The five most abundant and even the rarely caught *Labeobarbus* species of Lake Tana migrating to Ribb River segregated temporally except *L. intermedius*.

  L. megastoma was the first to aggregate at the river mouth and run to upstream followed by *L. truttiformis* and *L. tsanensis*. The last to aggregate and migrate upstream is *L. brevicephalus*.
- All the tributaries and the upstream Ribb main channel can be considered as suitable breeding habitats for *Labeobarbus* spp. The total estimated length of spawning habitat along the main Ribb River and its tributaries is 351.5 km. The area below the dam contributes 57.3 % while the spawning habitat above the dam contributes 42.7 % of the total. Moreover it has to be noted that higher relative abundance of *Labeobarbus* spp. was observed from sampling sites below the dam than above the dam. It has been estimated that 48 % (700

tons/year) of the fish production from Lake Tana is contributed by the fish caught from the Ribb River mouth and its surroundings. However, *Labeobarbus* spp. contribute some 20 % of the total catch, which is about 140 tons per year.

- The river mouth and shallow areas around Ribb River are ideal breeding and feeding grounds and are important habitats that play great roles in the functioning of Lake Tana ecosystem. Nile tilapia and African catfish use this flooded area for breeding and feeding. Therefore, its habitat modification will have adverse effect on the fish production mainly in the lake and to a smaller extent on the main river channel.
- There is no an all time fisheries activity on the river. Its contribution for the total fish catch in the area is less than 1 %. There are no communities whose livelihood is dependent on the riverine fisheries. There are no fishing communities located upstream and downstream of the dam. Therefore, there will not be significant loss of livelihood from the riverine fishery because of the dam construction.
- Based on estimates made during the sampling period, fishing activity takes place at about 12 sites along the stretch of the river. It takes place for about two months (from 26 August to 26 October). On average fishing is done 5 times at each site for the two months. The daily catch has been estimated to be about 25 fish/night/site (about 50 kg/night/site). Therefore, a total of about 360 quintals (or 36 tons) of fish could be harvested from the river annually.
- On the other hand new fisheries will emerge from the formation of the reservoir. The reservoir will have productive fisheries, although constructing reservoirs modifies the biogeochemical cycles, such as interrupting the flow of organic carbon, changing nutrient balance, and altering oxygen and thermal conditions. The reservoir is estimated to be about 1918 ha. On average, the fish production from such type of tropical reservoir is estimated to be about 100 kg/ha/yr. Therefore, annually 1918 quintal of fish could be produced from this reservoir.
- Lake Tana fishery is highly dependent on the Eastern coast (Ribb River mouth and its surroundings). About 48% of the fish (about 700 tons) that landed on the southern gulf of Bahir Dar comes from the Ribb River mouth areas. Ribb River mouth and the adjacent area flooded by the river have great contribution

for the Lake Tana fishery. Therefore, this area needs to be protected from any habitat modification.

- The catch of *Labeobarbus* spp. from Lake Tana has dramatically declined (by 75% in 10 years time). The contribution of *Labeobarbus* species to Lake Tana fishery was about 40 % in the 1990s and declined to 17 % in 2000s. This implies that this species flock is under pressure from different sources of threat. Fishing at the river mouth during breeding season, spawning habitat destruction, silt load and similar other factors are believed to be causing this decline.
- In the 1990's species composition of the commercial catch from Lake Tana was large *Labeobarbus* spp. (40%), African catfish (*Clarias gariepinus*) (25%) and Nile tilapia (*Oreochromis niloticus*) (35%). In 2007, the species composition has shifted into 64%, 21% and 15% for Nile Tilapia, Catfish and *Labeobarbus* species, respectively. There is a sharp decline of the endemic *Labeobarbus* species that needs serious attention for the sustainable development of Lake Tana fishery.
- Lake Tana fishery has employed more than 3,000 individuals who are directly or indirectly dependent, for their livelihood, on the major activities of fishing, marketing, and processing. It is also contributing its share by way of providing employment opportunity to women and other landless people such as ex-soldiers.
- Generally, the dam will have a negative impact on the migratory *Labeobarbus* species that spawn past the dam in upstream Ribb River and its tributaries and that will, in turn, have impact on the fishery of Lake Tana. However, there are mitigation measures that minimize the negative effects of the dam and allow its construction and operation without very much compromising the functioning of the ecosystem.

2. Recommended Mitigation Measures

- Sustainable management of natural water resources should include environmentally sound dam construction and operation with respect to both upstream and downstream management. Because of slowly evolving alterations in riverine ecosystems following the construction of a dam, and the

interference with other anthropogenic activities, some of the effects of damming may be overlooked.

- Construction of the dam at upstream Ribb River channel will prevent the migration of *Labeobarbus* spp during the rainy season into tributaries located above the dam. However, there are many tributaries (at least 5) below the dam that can serve as spawning grounds for those fish that migrate from the lake. For those species that will be trapped at the reservoir, there is a possibility that they could migrate upstream into the tributaries which are located above the reservoir.
- The migrating fishes have specific requirement (oxygenated gravel bed with less sediment) to spawn at the tributaries. It is, therefore, important to protect the watershed of the main river channel and the tributaries from deforestation and environmental degradation so that the diversity and productivity of the fish will be maintained. Water use for irrigation from these small tributaries should be minimized especially during the breeding season. Other habitat destruction activities should be avoided.
- The time of the blocking of the dam should not coincide with the period of migration of the fishes (the main rainy season).
- The river mouth and the surrounding eastern coast of Lake Tana are important habitats for reproduction and feeding of the commercially important fish species (the Catfish *Clarias gariepinus* and the Nile tilapia *Orechromis niloticus*). If seasonal flood plains are lost as a result of the dam, there will be substantial losses to the fisheries of floodplain river-lake ecosystem. It is, therefore, advisable to maintain the existing annual flooding of the Ribb River area.
- The flow of Ribb River should not be discontinued or the volume should not be below the level that would enable fish movement throughout the year. The natural seasonal pattern of flow is vital in life history stages such as migrations, spawning and feeding. Adult and young fish move up and down throughout the year along the river channel. Zero discharge from dams should be avoided; a sufficient volume of flow is required to inundate flood plains, recharge wetlands and to provide sufficient depth for larger species. If there is an extended zero flow periods caused by diversion of water following construction of the dam, the riverbed below the dam will be severely braided and the channel can become blocked by sand bars. A sufficient volume of flow

is required to inundate flood plains, recharge wetlands and provide sufficient depth of water for larger species. Further hydrological studies may be needed to determine the amount of water required to inundate flood plains and recharge wetlands. However, about 20 cm height of water is the minimum requirement to keep larger species migrating to and from Ribb River.

- The fish stock from Lake Tana is sharply declining even before the construction of the dam. It is, therefore, important to rehabilitate the stock using artificial propagation. At Bahir Dar Fisheries Research Center small hatchery is becoming operational. It is advisable to strengthen this hatchery so that fish can be stocked in the lake and the reservoir.
- In order to improve the livelihood of the people around the dam area, fish must be stocked into the reservoir. The fish species that will be stocked should be species from Lake Tana propagated at a hatchery. Introduction of any new fish species into the reservoir will affect the fish diversity of the Lake Tana sub-basin. This new fisheries will ease the pressure on the riverine fishery and prevent illegal and destructive fishing activities.
- The decline of fish catch from the rivers and the lake appears to be due to fishing during breeding season, using destructive fishing gear and open access nature of the resource. For example, fishers around Ribb River have no gillnet to catch fish. As a result they are forced to use destructive fishing methods (poison and blocking). Fishing at the river mouth and the river should be closed from July to October. Fishers must use gillnets of 10 cm and above stretched mesh size. Licensing of fishers must be immediately materialized. Enforcement of management measures, effective training and extension work should incorporate active participation of the fisher community including the upstream and downstream communities.
- Thorough studies, similar to the one conducted on Ribb River, on the migratory behavior of the fishes of Lake Tana need to be conducted on all other rivers (other than Ribb River) of the Lake Tana basin, as the spatial and temporal migratory behavior of some of the *Labeobarbus* species is not completely clear. Utilizing the water resources, in whatever ways, of Lake Tana and the surrounding unstudied rivers need to be in harmony with the findings of those studies.

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APPENDICES

Appendix I: Names of contacted institutions and individuals

Ministry of Water Resources (Head Office)

Amhara Agricultural Research Institute

Bahirdar Fisheries and other Living Aquatic Resources Research Center

Ministry of Water Resources (Amhara Region)

Environmental Protection and Land Use Administration Authority

Faculty of Agriculture and Biology Department, Bahir Dar University

Ethiopian Fish Marketing Enterprise

Zege "Fish-For- All" Fishers Association

Lake Tana NO 1 Fisher Cooperatives

Giorgis Fish Traders Association

Lake Tana Transport Enterprise

South Gondar Zone Administration

Libo Kemkem Woreda Agriculture Office

Ebenat Woreda Agriculture Office

Several farmers residing along Ribb River

Appendix II: Questionnaire for the socio-economic studies

Name_____Age_____Occupation_____

Woreda_____ Kebele_____

1. Do you catch fishes?

2. How often? Occasionally? Often?

3. Which months are good for fishing?

4. For what purposes are you fishing? Household consumption? Commercial? Both?

5. If commercial how much do you get per month? Per year?

6. Which fish species do you catch?

7. Who, in the family, is responsible for fishing?

8. Which species are important for the market?

9. Which specific localities are important for fishing?

10. What gears do you use for fishing?

11. Is there an increase or decrease of the catches in the last years?

12. For what other purposes do you use the river?

13. Do you think the damming will affect your fishing activities? How?

Appendix III: Sampling sites and sampling activities in Pictures

Ribb main channel at the bridge between Bahir Dar and Gondar

Ribb River main channel at the old bridge between Zeha and Debretabor

Kirarign River on the road (From Addis Zemen to Ebenat towns)

Main Ribb River at the dam site

Barya River joining the main Ribb channel

Hamus River at the junction with the main Ribb River

Scoop net fishing at Keha River

Reed boat fishing in Lake Tana

Fencing to collect fish in the main Ribb River

Labeobarbus spp. collected from Hamus River

Taking weight of fish at the dam site

Looking at maturity of gonads at the dam site

Interviewing a farmer at Hamus River

Interviewing a farmer at Barya River while the latter is on the job

Stuck on the way to the main Ribb River near Zeha town

Crossing Ribb main channel near the old Zeha-Debretabor bridge

Trip to Barya River, tributary of Ribb River

Trip to Hamus River, tributary of Ribb River

Appendix IV: Raw data

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Barya River	6CM	BRE	*Labeobarbus*	233		M	VI
Barya River	6CM	CLA	*Clarias*	336		F	II
Barya River	6CM	INT	*Labeobarbus*	227		M	VI
Barya River	6CM	INT	*Labeobarbus*	322		M	III
Barya River	6CM	INT	*Labeobarbus*	335		F	VII
Barya River	6CM	INT	*Labeobarbus*	228		M	VI
Barya River	6CM	INT	*Labeobarbus*	313		F	VI
Barya River	6CM	INT	*Labeobarbus*	342	644	M	VI
Barya River	6CM	INT	*Labeobarbus*	222	195	M	VI
Barya River	6CM	INT	*Labeobarbus*	226	286	M	VI
Barya River	6CM	INT	*Labeobarbus*	223	192	M	VI
Barya River	6CM	INT	*Labeobarbus*	275	384	M	VI
Barya River	6CM	INT	*Labeobarbus*	220	153	M	VI
Barya River	6CM	INT	*Labeobarbus*	220	128	M	VI
Barya River	6CM	INT	*Labeobarbus*	221	158	M	VI
Barya River	6CM	INT	*Labeobarbus*	222	168	M	VI
Barya River	6CM	INT	*Labeobarbus*	221	134	M	VI
Barya River	6CM	INT	*Labeobarbus*	223	132	M	VI
Barya River	6CM	INT	*Labeobarbus*	225	181	M	VI
Barya River	6CM	INT	*Labeobarbus*	220	123	M	VI
Barya River	6CM	INT	*Labeobarbus*	221	151	M	VI
Barya River	6CM	INT	*Labeobarbus*	221	142	M	VI
Barya River	6CM	INT	*Labeobarbus*	328	660	M	VI
Barya River	6CM	INT	*Labeobarbus*	323	422	M	VI
Barya River	6CM	INT	*Labeobarbus*	325	825	M	VI
Barya River	6CM	INT	*Labeobarbus*	322	597	M	VI
Barya River	6CM	INT	*Labeobarbus*	353	583	M	VI
Barya River	6CM	INT	*Labeobarbus*	345	495	M	VI
Barya River	6CM	INT	*Labeobarbus*	242	370	M	VI
Barya River	6CM	INT	*Labeobarbus*	272	262	M	VI
Barya River	6CM	INT	*Labeobarbus*	292	419	M	VI
Barya River	6CM	INT	*Labeobarbus*	313	558	M	VI
Barya River	6CM	INT	*Labeobarbus*	263	327	M	III
Barya River	6CM	INT	*Labeobarbus*	284	333	F	III
Barya River	6CM	INT	*Labeobarbus*	272	437	M	III
Barya River	6CM	INT	*Labeobarbus*	340	672	F	VI
Barya River	6CM	INT	*Labeobarbus*	336	796	F	VI
Barya River	6CM	INT	*Labeobarbus*	333	709	F	VI
Barya River	6CM	INT	*Labeobarbus*	284	336	M	VI
Barya River	6CM	MEG	*Labeobarbus*	315		M	VI
Barya River	6CM	MEG	*Labeobarbus*	334		M	VI
Barya River	6CM	MEG	*Labeobarbus*	367		M	VI
Barya River	6CM	MEG	*Labeobarbus*	369		F	VI
Barya River	6CM	MEG	*Labeobarbus*	330		M	VI
Barya River	6CM	MEG	*Labeobarbus*	285		M	VI
Barya River	6CM	MEG	*Labeobarbus*	363		M	VI
Barya River	6CM	MEG	*Labeobarbus*	365		M	VI
Barya River	6CM	MEG	*Labeobarbus*	387		F	VI
Barya River	6CM	MEG	*Labeobarbus*	400		F	VI
Barya River	6CM	MEG	*Labeobarbus*	372		F	VI
Barya River	6CM	MEG	*Labeobarbus*	427		F	VII

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Barya River	6CM	MEG	*Labeobarbus*	440		F	VI
Barya River	6CM	MEG	*Labeobarbus*	384		F	VI
Barya River	6CM	MEG	*Labeobarbus*	348		M	VI
Barya River	6CM	MEG	*Labeobarbus*	445		F	VI
Barya River	6CM	MEG	*Labeobarbus*	405		F	VII
Barya River	6CM	MEG	*Labeobarbus*	403		F	VI
Barya River	6CM	MEG	*Labeobarbus*	446	782	F	VI
Barya River	6CM	NED	*Labeobarbus*	321		F	VI
Barya River	6CM	NED	*Labeobarbus*	383		F	VII
Barya River	6CM	NED	*Labeobarbus*	312		F	VI
Barya River	10CM	NED	*Labeobarbus*	317	552	F	VI
Barya River	12CM	NED	*Labeobarbus*	390	895	F	VI
Barya River	12CM	NED	*Labeobarbus*	355	709	F	VI
Barya River	6CM	TSA	*Labeobarbus*	227	194	M	VI
Barya River	6CM	TSA	*Labeobarbus*	237	239	M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	240		M	VI
Chibirna River	Cast net	GON	*Labeobarbus*	360		M	VI
Chibirna River	8cm	TRU	*Labeobarbus*	430		F	VI
Chibirna River	Cast net	TRU	*Labeobarbus*	400		F	VI
Chibirna River	Cast net	TRU	*Labeobarbus*	420		M	VI
Chibirna River	Cast net	TRU	*Labeobarbus*	345		F	VI
Hamus River	Cast net	BRE	*Labeobarbus*	124		M	VI
Hamus River	6CM	INT	*Labeobarbus*	269		M	VI
Hamus River	6CM	INT	*Labeobarbus*	255		F	VI
Hamus River	6CM	INT	*Labeobarbus*	239		M	VI
Hamus River	6CM	INT	*Labeobarbus*	220		M	VI
Hamus River	8CM	INT	*Labeobarbus*	315		F	VI
Hamus River	Cast net	INT	*Labeobarbus*	138		M	II
Hamus River	Cast net	INT	*Labeobarbus*	277		M	VI
Hamus River	Cast net	INT	*Labeobarbus*	270		M	VI
Hamus River	8CM	MEG	*Labeobarbus*	340		M	VI
Hamus River	10CM	MEG	*Labeobarbus*	321		F	VI
Hamus River	10CM	MEG	*Labeobarbus*	339		M	VI
Hamus River	10CM	MEG	*Labeobarbus*	450		M	VI
Hamus River	10CM	MEG	*Labeobarbus*	400		F	VI
Hamus River	8CM	MEG	*Labeobarbus*	382		M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	322		M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	333		M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	352		M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	325		M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	348		M	VI
Hamus River	8CM	NED	*Labeobarbus*	237		M	VI
Keha River	8cm	CLA	*Clarias*	451		M	III
Keha River	10cm	CLA	*Clarias*	345	330	M	I
Keha River	8cm	CLA	*Clarias*	374		F	IV
Keha River	8cm	GON	*Labeobarbus*	377		F	VI
Keha River	8cm	INT	*Labeobarbus*	281		M	VI
Keha River	8cm	INT	*Labeobarbus*	286	360	M	VI
Keha River	8cm	MEG	*Labeobarbus*	356		M	VI
Keha River	8cm	MEG	*Labeobarbus*	381		M	VI
Keha River	8cm	MEG	*Labeobarbus*	348		M	VI
Keha River	8cm	MEG	*Labeobarbus*	385		M	VI
Keha River	8cm	MEG	*Labeobarbus*	392		F	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Keha River	8cm	MEG	*Labeobarbus*	392		F	VI
Keha River	8cm	MEG	*Labeobarbus*	380		F	VI
Keha River	8cm	MEG	*Labeobarbus*	351	505	M	VI
Keha River	8cm	MEG	*Labeobarbus*	358	535	M	VI
Keha River	8cm	MEG	*Labeobarbus*	317	395	M	VI
Keha River	10cm	TSA	*Labeobarbus*	379	865	F	VI
Kirangn River	8cm	BRE	*Labeobarbus*	259		F	VI
Main channel Broken Bridge	12CM	INT	*Labeobarbus*	350		F	VI
Main channel Broken Bridge	8CM	TRU	*Labeobarbus*	340		M	VI
Main channel Broken Bridge	6CM	TSA	*Labeobarbus*	222		M	III
Main Channel Bahir Dar-Gondar Bridge	6cm	CLA	*Clarias*	372		F	II
Main Channel Bahir Dar-Gondar Bridge	6cm	CLA	*Clarias*	331		M	I
Main Channel Bahir Dar-Gondar Bridge	6cm	CLA	*Clarias*	376		F	II
Main channel Broken Bridge	6cm	INT	*Labeobarbus*	234		M	VI
Main channel Broken Bridge	6cm	MEG	*Labeobarbus*	318		F	VI
Shini River	8cm	CLA	*Clarias*	418		M	III
Main channel Broken Bridge	6CM	BES	*Varicorhinus*	250	215	F	III
Main channel Broken Bridge	6CM	BES	*Varicorhinus*	116	65	M	IV
Main channel Broken Bridge	6CM	BES	*Varicorhinus*	265	315	F	III
Main channel Broken Bridge	6CM	BES	*Varicorhinus*	240	214	F	IV
Main channel Broken Bridge	6CM	BRE	*Labeobarbus*	205	139	M	III
Main channel Broken Bridge	6CM	BRE	*Labeobarbus*	206	111	F	VI
Main channel Broken Bridge	6CM	BRE	*Labeobarbus*	225	124	F	VII
Main channel Broken Bridge	6CM	BRE	*Labeobarbus*	223	109	M	VI
Main channel Broken Bridge	6CM	BRE	*Labeobarbus*	228	1321	F	VI
Main channel Broken Bridge	6CM	CLA	*Clarias*	410	449	M	III
Main channel Broken Bridge	6CM	CLA	*Clarias*	350	322	F	II
Main channel Broken Bridge	6CM	CLA	*Clarias*	380	332	M	III
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	224	139	F	VII
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	230	150	F	VII
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	241	178	M	VI
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	225	142	F	VII
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	210	136	F	VI
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	220	136	M	VI
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	225	151	F	III
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	215	140	F	III
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	270	269	F	II
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	365	836	M	II
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	290	323	M	VI
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	278	307	M	VI
Main channel Broken Bridge	6CM	INT	*Labeobarbus*	210	127	M	II
Main channel Broken Bridge	6CM	NED	*Labeobarbus*	330	530	M	VI
Main channel Broken Bridge	6CM	NED	*Labeobarbus*	270	365	M	III
Main channel Broken Bridge	6CM	NED	*Labeobarbus*	410	1010	F	VII
Main channel Broken Bridge	6CM	NED	*Labeobarbus*	420	1120	F	VII
Main Channel Dam Site	6cm	DEG	*Barbus*	203	127	M	III
Main Channel Dam Site	6cm	DEG	*Barbus*	202	123	M	III
Main Channel Dam Site	6CM	DEG	*Barbus*	230	174	M	III
Main Channel Dam Site	6CM	DEG	*Barbus*	195	108	F	IV
Main Channel Dam Site	6CM	DEG	*Barbus*	219	151	M	III
Main Channel Dam Site	8CM	BES	*Varicorhinus*	230	184	F	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	235	190	F	V
Main Channel Dam Site	8CM	BES	*Varicorhinus*	260	247	F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Dam Site	8CM	BES	*Varicorhinus*	275	234	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	265	240	F	II
Main Channel Dam Site	8CM	BES	*Varicorhinus*	265	229	F	III
Main Channel Dam Site	8CM	BES	*Varicorhinus*	270	278	F	V
Main Channel Dam Site	8CM	BES	*Varicorhinus*	210	107	F	V
Main Channel Dam Site	8CM	BES	*Varicorhinus*	270	297	F	V
Main Channel Dam Site	8CM	BES	*Varicorhinus*	250	216	M	II
Main Channel Dam Site	8CM	BES	*Varicorhinus*	250	256	F	V
Main Channel Dam Site	8CM	BES	*Varicorhinus*	320	491	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	245	200	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	249	169	F	V
Main Channel Dam Site	8CM	BES	*Varicorhinus*	270	255	F	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	325	453	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	265	205	F	III
Main Channel Dam Site	8CM	BES	*Varicorhinus*	280	315	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	220	166	F	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	240	448	F	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	305	388	F	II
Main Channel Dam Site	8CM	BES	*Varicorhinus*	338	526	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	278	278	F	III
Main Channel Dam Site	8CM	BES	*Varicorhinus*	230	172	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	290	351	F	V
Main Channel Dam Site	8CM	BES	*Varicorhinus*	220	127	F	II
Main Channel Dam Site	8CM	BES	*Varicorhinus*	250	203	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	280	290	M	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	254	236	F	IV
Main Channel Dam Site	8CM	BES	*Varicorhinus*	215	128	F	V
Main Channel Dam Site	6CM	BES	*Varicorhinus*	249	216	F	V
Main Channel Dam Site	6CM	BES	*Varicorhinus*	235	193	F	V
Main Channel Dam Site	6CM	BES	*Varicorhinus*	189	100	F	III
Main Channel Dam Site	6CM	BES	*Varicorhinus*	179	81	M	III
Main Channel Dam Site	6CM	BES	*Varicorhinus*	165	71	M	III
Main Channel Dam Site	6CM	BES	*Varicorhinus*	170	88	M	II
Main Channel Dam Site	6CM	BES	*Varicorhinus*	195	115	F	III
Main Channel Dam Site	6CM	BES	*Varicorhinus*	219	156	F	IV
Main Channel Dam Site	6CM	BES	*Varicorhinus*	232	182	M	IV
Main Channel Dam Site	6CM	BES	*Varicorhinus*	155	53	M	IV
Main Channel Dam Site	6cm	BRE	*Labeobarbus*	211	111	F	VI
Main Channel Dam Site	6cm	BRE	*Labeobarbus*	219	139	F	VII
Main Channel Dam Site	6cm	BRE	*Labeobarbus*	225	154	M	VI
Main Channel Dam Site	8CM	BRE	*Labeobarbus*	223	164	F	VI
Main Channel Dam Site	6CM	BRE	*Labeobarbus*	210	214	F	VII
Main Channel Dam Site	6CM	BRE	*Labeobarbus*	220	131	M	VI
Main Channel Dam Site	6CM	BRE	*Labeobarbus*	250	184	F	VII
Main Channel Dam Site	6CM	BRE	*Labeobarbus*	207	111	F	VII
Main Channel Dam Site	6CM	BRE	*Labeobarbus*	219	120	F	VII
Main Channel Dam Site	6CM	BRE	*Labeobarbus*	223	135	F	VI
Main Channel Dam Site	6cm	CLA	*Clarias*	390	418	F	II
Main Channel Dam Site	12cm	CLA	*Clarias*	593	1005	F	III
Main Channel Dam Site	12cm	CLA	*Clarias*	640	1760	M	III
Main Channel Dam Site	12cm	CLA	*Clarias*	720	2455	M	III
Main Channel Dam Site	8CM	CLA	*Clarias*	445	531	F	III
Main Channel Dam Site	8CM	CLA	*Clarias*	460	670	F	III

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Dam Site	8CM	CLA	*Clarias*	385	332	M	III
Main Channel Dam Site	8CM	CLA	*Clarias*	510	841	F	III
Main Channel Dam Site	8CM	CLA	*Clarias*	350	311	F	II
Main Channel Dam Site	8CM	CLA	*Clarias*	410	408	M	II
Main Channel Dam Site	8CM	CLA	*Clarias*	460	584	F	III
Main Channel Dam Site	8CM	CLA	*Clarias*	459	524	F	III
Main Channel Dam Site	8CM	CLA	*Clarias*	470	666	F	III
Main Channel Dam Site	6CM	CLA	*Clarias*	349	320	F	III
Main Channel Dam Site	8CM	CLA	*Clarias*	408	550	M	III
Main Channel Dam Site	12CM	CLA	*Clarias*	651	1540	M	III
Main Channel Dam Site	12CM	CLA	*Clarias*	664	1845	M	V
Main Channel Dam Site	6CM	CLA	*Clarias*	560	540	M	II
Main Channel Dam Site	6cm	INT	*Labeobarbus*	210	156	F	VI
Main Channel Dam Site	6cm	INT	*Labeobarbus*	225	171	F	III
Main Channel Dam Site	6cm	INT	*Labeobarbus*	240	176	F	VII
Main Channel Dam Site	6cm	INT	*Labeobarbus*	260	280	F	VI
Main Channel Dam Site	6cm	INT	*Labeobarbus*	300	480	F	VII
Main Channel Dam Site	6cm	INT	*Labeobarbus*	230	171	F	III
Main Channel Dam Site	6cm	INT	*Labeobarbus*	220	175	M	VI
Main Channel Dam Site	8CM	INT	*Labeobarbus*	260	219	M	III
Main Channel Dam Site	6CM	INT	*Labeobarbus*	220	136	F	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	260	219	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	230	152	M	III
Main Channel Dam Site	6CM	INT	*Labeobarbus*	230	159	F	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	305	376	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	289	301	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	309	409	M	III
Main Channel Dam Site	6CM	INT	*Labeobarbus*	292	332	F	VII
Main Channel Dam Site	6CM	INT	*Labeobarbus*	295	368	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	260	294	F	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	183	98	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	200	115	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	210	130	F	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	219	152	F	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	263	274	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	195	105	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	208	115	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	202	122	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	228	145	M	VI
Main Channel Dam Site	6CM	INT	*Labeobarbus*	176	86	M	III
Main Channel Dam Site	6CM	INT	*Labeobarbus*	220	151	M	III
Main Channel Dam Site	6CM	INT	*Labeobarbus*	240	191	M	VI
Main Channel Dam Site	8CM	INT	*Labeobarbus*	296	386	F	VI
Main Channel Dam Site	8CM	INT	*Labeobarbus*	340	601	M	III
Main Channel Dam Site	6cm	NED	*Labeobarbus*	228	184	M	VI
Main Channel Dam Site	6cm	NED	*Labeobarbus*	295	474	F	III
Main Channel Dam Site	12cm	NED	*Labeobarbus*	435	1310	F	VII
Main Channel Dam Site	12cm	NED	*Labeobarbus*	405	1160	F	VI
Main Channel Dam Site	12cm	NED	*Labeobarbus*	405	1160	F	VII
Main Channel Dam Site	12cm	NED	*Labeobarbus*	390	1005	F	VII
Main Channel Dam Site	12cm	NED	*Labeobarbus*	390	1115	F	VI
Main Channel Dam Site	12cm	NED	*Labeobarbus*	395	1045	F	VI
Main Channel Dam Site	6CM	NED	*Labeobarbus*	391	1000	F	VII

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Dam Site	6CM	NED	*Labeobarbus*	222	154	M	VI
Main Channel Dam Site	6CM	NED	*Labeobarbus*	223	175	M	III
Main Channel Dam Site	6CM	NED	*Labeobarbus*	204	112	M	VI
Main Channel Dam Site	6CM	NED	*Labeobarbus*	257	258	M	VI
Main Channel Dam Site	6CM	NED	*Labeobarbus*	229	183	M	VI
Main Channel Hamus - Mello Rivers	8CM	BES	*Varicorhinus*	230		F	V
Main Channel Hamus - Mello Rivers	8CM	BES	*Varicorhinus*	217		F	IV
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	211		M	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	214		F	VII
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	221		F	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	218		M	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	210		F	VII
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	221		M	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	205		M	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	231		M	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	209		M	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	188		F	VII
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	212		M	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	210		F	VI
Main Channel Hamus - Mello Rivers	8CM	BRE	*Labeobarbus*	197		F	VI
Main Channel Hamus - Mello Rivers	8CM	CLA	*Clarias*	390		F	II
Main Channel Hamus - Mello Rivers	8CM	INT	*Labeobarbus*	229		F	VI
Main Channel Hamus - Mello Rivers	8CM	INT	*Labeobarbus*	270		F	III
Main Channel Hamus - Mello Rivers	8CM	INT	*Labeobarbus*	201		M	III
Main Channel Hamus - Mello Rivers	8CM	INT	*Labeobarbus*	211		M	II
Main Channel Hamus - Mello Rivers	8CM	INT	*Labeobarbus*	218		F	VI
Main Channel Hamus - Mello Rivers	8CM	INT	*Labeobarbus*	201		M	VI
Main Channel Hamus - Mello Rivers	8CM	INT	*Labeobarbus*	193		M	II
Main Channel Bahir Dar-Gondar Bridge	10	ACU	*Labeobarbus*	375	606	F	III
Main Channel Bahir Dar-Gondar Bridge	10	ACU	*Labeobarbus*	139	1160	F	II
Main Channel Bahir Dar-Gondar Bridge	8	ACU	*Labeobarbus*	284	267	M	III
Main Channel Bahir Dar-Gondar Bridge	3(monofilament	BRE	*Labeobarbus*	178	54	M	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	213	117	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	219	105	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	215	119	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	206	90	M	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	204	88	M	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	220	115	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	214	134	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	BRE	*Labeobarbus*	207	112	F	VII
Main Channel Bahir Dar-Gondar Bridge	8	BRE	*Labeobarbus*	167	47	M	VI
Main Channel Bahir Dar-Gondar Bridge	8	BRE	*Labeobarbus*	152	39	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	219	116	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	210	98	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	219	128	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	208	115	F	III
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	215	126	F	II
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	209	115	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	200	94	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	202	112	M	III
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	210	111	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	192	94	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	204	112	F	III

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	205	19	F	II
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	206	112	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	210	105	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	206	111	F	II
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	210	101	F	II
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	211	127	F	III
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	200	102	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	203	101	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	224	138	F	III
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	276	124	F	VII
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	221	104	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	211	130	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	215	128	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	205	108	F	III
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	204	113	M	VII
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	206	114	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	BRE	*Labeobarbus*	226	138	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	379	310	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	330	428	M	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	354	282	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	443	541	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	377	296	M	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	405	333	M	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	421	415	M	III
Main Channel Bahir Dar-Gondar Bridge	10	CLA	*Clarias*	570	1020	M	III
Main Channel Bahir Dar-Gondar Bridge	10	CLA	*Clarias*	585	1165	F	II
Main Channel Bahir Dar-Gondar Bridge	6	CLA	*Clarias*	316	165	F	II
Main Channel Bahir Dar-Gondar Bridge	6	CLA	*Clarias*	318	196	M	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	347	237	F	II
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	CLA	*Clarias*	384	311	M	II
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	CLA	*Clarias*	257	122	M	II
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	CLA	*Clarias*	362	295	F	II
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	CLA	*Clarias*	358	249	F	II
Main Channel Bahir Dar-Gondar Bridge	castnet	CLA	*Clarias*	338	310	F	II
Main Channel Bahir Dar-Gondar Bridge	10	CLA	*Clarias*	212	116	F	IV
Main Channel Bahir Dar-Gondar Bridge	10	CLA	*Clarias*	635	1490	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	139	361	M	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	402	371	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	361	301	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	465	586	M	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	411	436	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	505	796	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	425	492	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	451	478	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	408	361	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	374	332	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	364	292	F	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	395	335	M	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	358	294	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	347	273	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	322	322	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	382	374	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	366	275	F	II

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	383	331	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	373	331	M	III
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	363	288	F	II
Main Channel Bahir Dar-Gondar Bridge	8	CLA	*Clarias*	233	163	F	IV
Main Channel Bahir Dar-Gondar Bridge	6	CLA	*Clarias*	293	168	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	221	153	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	232	175	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	202	113	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	335	163	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	240	163	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	212	117	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	235	138	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	223	114	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	220	130	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	222	128	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	243	191	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	263	245	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	211	120	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	239	199	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	208	118	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	234	163	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	224	142	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	215	120	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	218	122	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	210	117	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	221	140	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	205	112	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	231	166	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	209	117	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	225	173	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	240	292	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	214	134	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	193	101	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	214	146	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	201	118	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	202	114	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	207	116	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	223	136	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	207	119	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	236	185	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	216	127	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	211	131	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	228	158	F	I
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	207	123	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	212	124	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	169	67	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	211	138	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	121	145	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	209	125	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	209	123	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	204	113	F	I
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	202	114	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	239	165	M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	235	173	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	232	158	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	207	115	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	215	130	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	192	96	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	226	165	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	210	123	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	200	106	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	227	147	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	214	122	F	I
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	228	147	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	201	105	F	III
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	227	127	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	218	116	F	III
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	220	126	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	203	98	M	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	201	221	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	206	105	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	240	157	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	220	137	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	223	127	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	207	118	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	230	165	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	206	98	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	222	136	F	III
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	220	141	F	VII
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	INT	*Labeobarbus*	206	108	F	II
Main Channel Bahir Dar-Gondar Bridge	10	INT	*Labeobarbus*	376	832	F	III
Main Channel Bahir Dar-Gondar Bridge	10	INT	*Labeobarbus*	327	463	F	II
Main Channel Bahir Dar-Gondar Bridge	10	INT	*Labeobarbus*	229	145	F	III
Main Channel Bahir Dar-Gondar Bridge	10	INT	*Labeobarbus*	193	87	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	272	228	M	III
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	246	183	F	VII
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	306	398	M	VII
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	262	224	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	197	103	F	III
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	297	365	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	340	196	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	319	441	M	III
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	307	428	F	III
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	284	301	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	299	348	F	III
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	280	300	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	243	204	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	254	225	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	268	266	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	231	165	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	256	243	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	259	214	F	VII
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	240	173	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	266	243	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	258	214	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	259	218	F	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	286	327	F	II
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	257	212	F	
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	266	260	M	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	255	192	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	246	212	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	224	162	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	232	193	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	254	216	M	III
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	247	200	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	245	172	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	235	196	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	246	197	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	202	112	F	III
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	230	156	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	INT	*Labeobarbus*	200	101	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	233	153	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	232	184	M	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	226	146	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	230	150	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	228	134	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	242	192	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	224	134	F	VII
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	217	140	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	231	153	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	213	127	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	232	143	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	240	156	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	220	134	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	241	189	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	237	159	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	233	152	F	II
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	230	149	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	214	122	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	235	138	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	220	141	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	204	105	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	217	124	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	223	128	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	208	117	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	216	143	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	223	128	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	238	163	M	VII
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	216	131	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	245	197	F	VII
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	258	230	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	230	151	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	217	121	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	220	108	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	220	131	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	223	153	M	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	206	96	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	230	240	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	220	141	F	III

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	210	122	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	216	117	F	III
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	225	140	F	VI
Main Channel Bahir Dar-Gondar Bridge	6	INT	*Labeobarbus*	210	121	F	III
Main Channel Bahir Dar-Gondar Bridge	8	MEG	*Labeobarbus*	373	564	F	II
Main Channel Bahir Dar-Gondar Bridge	8	MEG	*Labeobarbus*	324	342	M	III
Main Channel Bahir Dar-Gondar Bridge	10	MEG	*Labeobarbus*	424	831	M	VII
Main Channel Bahir Dar-Gondar Bridge	8	MEG	*Labeobarbus*	350	448	M	VI
Main Channel Bahir Dar-Gondar Bridge	8	MEG	*Labeobarbus*	341	389	M	III
Main Channel Bahir Dar-Gondar Bridge	8	MEG	*Labeobarbus*	309	341	M	III
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	NED	*Labeobarbus*	180	70	M	VI
Main Channel Bahir Dar-Gondar Bridge	10	PLA	*Labeobarbus*	198	200	F	VII
Main Channel Bahir Dar-Gondar Bridge	12	PLA	*Labeobarbus*	440	1220	M	III
Main Channel Bahir Dar-Gondar Bridge	6	SUR	*Labeobarbus*	226	162	F	VII
Main Channel Bahir Dar-Gondar Bridge	12	TIL	*Oreochromis*	342	679	M	IV
Main Channel Bahir Dar-Gondar Bridge	10	TIL	*Oreochromis*	262	285	M	III
Main Channel Bahir Dar-Gondar Bridge	10	TIL	*Oreochromis*	324	561	F	IV
Main Channel Bahir Dar-Gondar Bridge	10	TIL	*Oreochromis*	390	405	F	IV
Main Channel Bahir Dar-Gondar Bridge	12	TRU	*Labeobarbus*	440	1055	F	II
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	TRU	*Labeobarbus*	224	144	F	III
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	TRU	*Labeobarbus*	245	193	F	VI
Main Channel Bahir Dar-Gondar Bridge	5(monofilament)	TRU	*Labeobarbus*	225	127	F	III
Main Channel Bahir Dar-Gondar Bridge	8	TRU	*Labeobarbus*	264	304	F	III
Main Channel Bahir Dar-Gondar Bridge	6	TRU	*Labeobarbus*	220	135	F	VI
Main Channel Bahir Dar-Gondar Bridge	8	TSA	*Labeobarbus*	304	402	F	II
Main Channel Upper Mello	8CM	BES	*Varicorhinus*	230		F	V
Main Channel Upper Mello	10CM	BES	*Varicorhinus*	239		F	V
Main Channel Upper Mello	10CM	BRE	*Labeobarbus*	211		M	VI
Main Channel Upper Mello	10CM	BRE	*Labeobarbus*	200		M	VI
Main Channel Upper Mello	8CM	CLA	*Clarias*	390		F	II
Main Channel Upper Mello	10CM	CLA	*Clarias*	370		M	II
Main Channel Upper Mello	6	INT	*Labeobarbus*	348	598	M	III
Main Channel Upper Mello	6	INT	*Labeobarbus*	335	548	M	VI
Main Channel Upper Mello	6	INT	*Labeobarbus*	440	1475	F	VII
Main Channel Upper Mello	6	INT	*Labeobarbus*	195	79	M	VII
Main Channel Upper Mello	6	INT	*Labeobarbus*	533	902	F	VII
Main Channel Upper Mello	6	INT	*Labeobarbus*	569	1180	M	III
Main Channel Upper Mello	6	INT	*Labeobarbus*	526	948	F	III
Main Channel Upper Mello	6	INT	*Labeobarbus*	532	1010	M	III
Main Channel Upper Mello	8CM	INT	*Labeobarbus*	229		M	VI
Main Channel Upper Mello	8CM	INT	*Labeobarbus*	270		F	III
Main Channel Upper Mello	6	NED	*Labeobarbus*	278	319	M	VI
Main Channel Upper Mello	6	NED	*Labeobarbus*	350	698	M	VI
Main Channel Upper Mello	10CM	TIL	*Oreochromis*	231		F	III
Main Channel Upper Mello	10CM	TIL	*Oreochromis*	225		M	III
Main Channel Ribb RM	8cm	ACU	*Labeobarbus*	285	279	F	V
Main Channel Ribb RM	6cm	BES	*Varicorhinus*	244	233	M	II
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	207	117	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	202	109	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	209	120	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	215	130	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	190	93	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	195	99	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	230	156	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	212	125	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	220	138	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	215	130	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	219	136	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	217	133	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	227	150	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	220	138	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	M	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	220	138	F	V
Main Channel Ribb RM	8cm	BRE	*Labeobarbus*	240	175	F	V
Main Channel Ribb RM	8cm	BRE	*Labeobarbus*	230	156	F	II
Main Channel Ribb RM	8cm	BRE	*Labeobarbus*	202	109	F	V
Main Channel Ribb RM	10cm	BRE	*Labeobarbus*	195	99	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	217	133	F	II
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	215	130	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	205	114	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	203	111	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	235	165	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	195	99	M	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	215	130	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	190	93	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	212	125	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	122	M	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	230	156	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	220	138	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	230	156	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	218	135	F	II
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	223	143	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	212	125	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	212	125	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	222	141	M	II
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	195	99	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	202	109	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	200	107	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	231	158	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	190	93	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	223	143	F	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	196	101	F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	8cm	BRE	*Labeobarbus*	238	171	F	V
Main Channel Ribb RM	8cm	BRE	*Labeobarbus*	208	119	F	V
Main Channel Ribb RM	12cm	CLA	*Clarias*	505	809	M	II
Main Channel Ribb RM	12cm	CLA	*Clarias*	550	1031	F	II
Main Channel Ribb RM	12cm	CLA	*Clarias*	570	1140	F	II
Main Channel Ribb RM	12cm	CLA	*Clarias*	530	928	M	III
Main Channel Ribb RM	10cm	CLA	*Clarias*	660	1728	F	II
Main Channel Ribb RM	10cm	CLA	*Clarias*	630	1515	M	II
Main Channel Ribb RM	14cm	CLA	*Clarias*	680	1881	M	III
Main Channel Ribb RM	14cm	CLA	*Clarias*	642	1598	M	II
Main Channel Ribb RM	8cm	CLA	*Clarias*	567	1124	F	II
Main Channel Ribb RM	10cm	CLA	*Clarias*	526	908	M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	301	396	F	IV
Main Channel Ribb RM	8cm	CLA	*Clarias*	300	392	F	II
Main Channel Ribb RM	8cm	CLA	*Clarias*	292	359	F	II
Main Channel Ribb RM	8cm	CLA	*Clarias*	270	279	F	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	260	254	F	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	255	239	F	V
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	252	231	F	V
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	262	260	F	V
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	257	245	F	V
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	260	254	F	V
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	259	251	F	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	252	231	F	V
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	264	266	F	V
Main Channel Ribb RM	12cm	GON	*Labeobarbus*	337	561	F	II
Main Channel Ribb RM	6cm	GON	*Labeobarbus*	242	204	F	II
Main Channel Ribb RM	6cm	GON	*Labeobarbus*	265	269	F	II
Main Channel Ribb RM	6cm	GON	*Labeobarbus*	205	123	F	III
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	280	319	F	V
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	420	1100	F	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	285	336	F	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	247	217	F	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	252	231	F	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	253	234	M	II
Main Channel Ribb RM	8cm	GON	*Labeobarbus*	267	275	F	II
Main Channel Ribb RM	12cm	GON	*Labeobarbus*	542	2399	F	V
Main Channel Ribb RM	10cm	GON	*Labeobarbus*	450	1358	F	II
Main Channel Ribb RM	10cm	GON	*Labeobarbus*	355	658	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	190	96	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	195	104	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	230	173	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	195	104	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	220	151	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	240	197	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	217	145	M	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	198	109	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	200	113	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	225	162	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	240	197	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	205	122	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	225	162	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	227	166	F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	250	223	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	278	309	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	255	237	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	284	329	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	249	220	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	260	251	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	232	178	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	242	202	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	266	270	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	252	229	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	260	251	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	272	289	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	260	251	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	258	246	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	277	305	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	280	315	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	251	226	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	255	237	M	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	257	243	F	II
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	325	497	F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	330	521	F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280	315	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	222	155	M	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	225	162	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	210	131	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	235	185	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	244	207	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	210	131	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	224	160	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	210	131	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	205	122	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	205	122	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	230	173	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	219	149	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	217	145	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	208	127	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	208	127	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	250	223	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	220	151	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	200	113	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	230	173	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	216	143	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	210	131	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	217	145	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	205	122	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	235	185	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	215	141	M	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	210	131	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	203	118	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	185	89	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	212	135	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	210	131	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	220	151	F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	215	141	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	217	145	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	244	207	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	210	131	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	250	223	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	230	173	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	242	202	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	230	173	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	265	267	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	202	116	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	225	162	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	205	122	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	207	125	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	200	113	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	193	101	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	238	192	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	219	149	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	230	173	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	212	135	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	229	171	M	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	295	370	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	265	267	M	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	250	223	M	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	297	378	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	257	243	M	III
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	269	279	M	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	300	389	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	275	298	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	264	263	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	275	298	M	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	260	251	M	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	290	351	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	262	257	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	265	267	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	255	237	M	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	283	326	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	260	251	M	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	289	347	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	235	185	M	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	300	389	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	250	223	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	242	202	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	253	231	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	255	237	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	253	231	M	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	260	251	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	274	295	F	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	240	197	F	V
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	242	202	M	II
Main Channel Ribb RM	8cm	INT	*Labeobarbus*	290	351	F	II
Main Channel Ribb RM	12cm	INT	*Labeobarbus*	202	154	F	II
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	356	657	F	II
Main Channel Ribb RM	10cm	MAC	*Labeobarbus*	390	777	F	II

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	386	663	F	II
Main Channel Ribb RM	8cm	MEG	*Labeobarbus*	344	472	M	III
Main Channel Ribb RM	8cm	MEG	*Labeobarbus*	360	540	F	II
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	380	634	F	II
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	440	976	F	II
Main Channel Ribb RM	6cm	NED	*Labeobarbus*	288	335	F	V
Main Channel Ribb RM	8cm	PLA	*Labeobarbus*	300	390	F	II
Main Channel Ribb RM	8cm	PLA	*Labeobarbus*	260	248	F	II
Main Channel Ribb RM	8cm	PLA	*Labeobarbus*	315	454	F	II
Main Channel Ribb RM	12cm	PLA	*Labeobarbus*	401	971	F	II
Main Channel Ribb RM	8cm	TIL	*Oreochromis*	362	895	M	III
Main Channel Ribb RM	8cm	TIL	*Oreochromis*	305	534	M	II
Main Channel Ribb RM	10cm	TIL	*Oreochromis*	270	370	M	II
Main Channel Ribb RM	10cm	TIL	*Oreochromis*	240	259	F	II
Main Channel Ribb RM	10cm	TIL	*Oreochromis*	255	311	F	II
Main Channel Ribb RM	8cm	TIL	*Oreochromis*	185	118	F	II
Main Channel Ribb RM	12cm	TIL	*Oreochromis*	350	808	F	V
Main Channel Ribb RM	12cm	TIL	*Oreochromis*	358	865	M	II
Main Channel Ribb RM	12cm	TIL	*Oreochromis*	350	808	F	V
Main Channel Ribb RM	12cm	TIL	*Oreochromis*	320	617	F	IV
Main Channel Ribb RM	12cm	TIL	*Oreochromis*	317	600	F	II
Main Channel Ribb RM	10cm	TIL	*Oreochromis*	318	605	F	II
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	215	137	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	215	137	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	210	127	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	200	108	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	200	108	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	210	127	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	230	170	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	229	167	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	205	117	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	234	179	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	215	137	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	232	175	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	227	163	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	235	182	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	225	158	F	V
Main Channel Ribb RM	6cm	TRU	*Labeobarbus*	195	100	M	V
Main Channel Ribb RM	8cm	TRU	*Labeobarbus*	245	208	F	V
Main Channel Ribb RM	6cm	TSA	*Labeobarbus*	225	170	F	V
Main Channel Ribb RM	6cm	TSA	*Labeobarbus*	260	272	F	V
Main Channel Ribb RM	6cm	TSA	*Labeobarbus*	210	136	F	V
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	280	345	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	275	326	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	255	255	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	310	480	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	262	278	F	V
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	278	337	F	V
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	280	345	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	257	262	M	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	261	275	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	251	242	F	V
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	250	239	F	III

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6cm	TSA	*Labeobarbus*	314	501	F	V
Main Channel Ribb RM	6cm	TSA	*Labeobarbus*	262	278	F	V
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	245	224	M	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	318	522	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	285	366	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	280	345	M	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	240	209	F	II
Main Channel Ribb RM	8cm	TSA	*Labeobarbus*	288	378	F	II
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	375	891	F	V
Main channel Bahir Dar-Gondar Bridge	6CM	BRE	*Labeobarbus*	210	125	F	VI
Main Channel Bahir Dar-Gondar Bridge	12CM	CLA	*Clarias*	718	2270	M	II
Main Channel Bahir Dar-Gondar Bridge	8CM	CLA	*Clarias*	457	550	F	V
Main Channel Bahir Dar-Gondar Bridge	8CM	CLA	*Clarias*	480	710	M	II
Main Channel Bahir Dar-Gondar Bridge	6CM	CLA	*Clarias*	391	295	M	I
Main channel Bahir Dar-Gondar Bridge	10CM	MEG	*Labeobarbus*	419	710	M	VI
Main channel Bahir Dar-Gondar Bridge	10CM	MEG	*Labeobarbus*	380	555	F	VI
Main channel Bahir Dar-Gondar Bridge	10CM	MEG	*Labeobarbus*	417	765	F	VII
Main channel Bahir Dar-Gondar Bridge	8CM	MEG	*Labeobarbus*	369	465	M	VI
Main channel Bahir Dar-Gondar Bridge	10CM	TSA	*Labeobarbus*	352	525	F	VII
Barya River	6CM	BES	*Varicorhinus*	220	151	F	III
Barya River	Cast net	BES	*Varicorhinus*	92		M	II
Barya River	Cast net	BES	*Varicorhinus*	96			
Barya River	Cast net	BES	*Varicorhinus*	103			
Barya River	Cast net	BES	*Varicorhinus*	168	45	M	IV
Barya River	Cast net	BES	*Varicorhinus*	111	25		
Barya River	6cm	BES	*Varicorhinus*	234	280	F	II
Barya River	cast net	BRE	*Labeobarbus*	179	100	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	197	95	M	VI
Barya River	cast net	BRE	*Labeobarbus*	209	100	F	VI
Barya River	Cast net	BRE	*Labeobarbus*	207	120	M	VI
Barya River	cast net	BRE	*Labeobarbus*	178	80	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	186	85	M	VI
Barya River	cast net	BRE	*Labeobarbus*	187	105	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	191	85	M	VI
Barya River	cast net	BRE	*Labeobarbus*	176	75	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	193	80	M	VI
Barya River	cast net	BRE	*Labeobarbus*	155	50	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	120	10	M	III
Barya River	cast net	BRE	*Labeobarbus*	119	30	M	II
Barya River	Cast net	BRE	*Labeobarbus*	104		M	II
Barya River	cast net	BRE	*Labeobarbus*	203	105	F	VI
Barya River	Cast net	BRE	*Labeobarbus*	207	100	M	VI
Barya River	cast net	BRE	*Labeobarbus*	208	100	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	221	145	F	VI
Barya River	cast net	BRE	*Labeobarbus*	224	125	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	239	155	F	VI
Barya River	cast net	BRE	*Labeobarbus*	216	120	F	VI
Barya River	Cast net	BRE	*Labeobarbus*	211	120	F	VI
Barya River	Cast net	BRE	*Labeobarbus*	180	70	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	243	155	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	240	165	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	213	115	F	VI
Barya River	Cast net	BRE	*Labeobarbus*	187	50	M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Barya River	Cast net	BRE	*Labeobarbus*	194	70	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	187	75	M	VI
Barya River	Cast net	BRE	*Labeobarbus*	216	105	F	VI
Barya River	6cm	BRE	*Labeobarbus*	216	95	F	VI
Barya River	6cm	BRE	*Labeobarbus*	208	95	F	VI
Barya River	6cm	BRE	*Labeobarbus*	229	140	F	VI
Barya River	6CM	CLA	*Clarias*	432		M	III
Barya River	12CM	CLA	*Clarias*	588	1160	M	IV
Barya River	10Cm	CLA	*Clarias*	561	980	M	IV
Barya River	Cast net	DEG	*Barbus*	246	200	M	IV
Barya River	Cast net	GON	*Labeobarbus*	337	510	F	VI
Barya River	cast net	GON	*Labeobarbus*	394	935	F	VI
Barya River	cast net	GON	*Labeobarbus*	271	290	F	VI
Barya River	Cast net	GON	*Labeobarbus*	296	355	M	VI
Barya River	Cast net	GON	*Labeobarbus*	408	890	F	VI
Barya River	6CM	INT	*Labeobarbus*	251		F	VI
Barya River	6CM	INT	*Labeobarbus*	222		M	VI
Barya River	cast net	INT	*Labeobarbus*	96			
Barya River	cast net	INT	*Labeobarbus*	104			
Barya River	Cast net	INT	*Labeobarbus*	244	190	M	VI
Barya River	Cast net	INT	*Labeobarbus*	260	235	F	VI
Barya River	Cast net	INT	*Labeobarbus*	252	200	M	VI
Barya River	Cast net	INT	*Labeobarbus*	269	245	M	VI
Barya River	Cast net	INT	*Labeobarbus*	284	280	M	VI
Barya River	Cast net	INT	*Labeobarbus*	249	150	F	VI
Barya River	Cast net	INT	*Labeobarbus*	253	220	F	VI
Barya River	Cast net	INT	*Labeobarbus*	286	180	F	VI
Barya River	Cast net	INT	*Labeobarbus*	119			
Barya River	Cast net	INT	*Labeobarbus*	265	245	M	VI
Barya River	Cast net	INT	*Labeobarbus*	247	175	F	VI
Barya River	Cast net	INT	*Labeobarbus*	107	120		
Barya River	Cast net	INT	*Labeobarbus*	108			
Barya River	Cast net	INT	*Labeobarbus*	290	300	M	VI
Barya River	Cast net	INT	*Labeobarbus*	334	560	F	VI
Barya River	Cast net	INT	*Labeobarbus*	266	240	M	VI
Barya River	Cast net	INT	*Labeobarbus*	322	457	F	VI
Barya River	Cast net	INT	*Labeobarbus*	235	90	M	VI
Barya River	Cast net	INT	*Labeobarbus*	110			
Barya River	10CM	MEG	*Labeobarbus*	390		F	VI
Barya River	10CM	MEG	*Labeobarbus*	372		F	VI
Barya River	10CM	MEG	*Labeobarbus*	400		F	VII
Barya River	10CM	MEG	*Labeobarbus*	381		M	VI
Barya River	10CM	MEG	*Labeobarbus*	353		F	VI
Barya River	10CM	MEG	*Labeobarbus*	425		F	VI
Barya River	10CM	MEG	*Labeobarbus*	363		M	VI
Barya River	10CM	MEG	*Labeobarbus*	401		M	VI
Barya River	10CM	MEG	*Labeobarbus*	379		F	VI
Barya River	10CM	MEG	*Labeobarbus*	380		F	VI
Barya River	10CM	MEG	*Labeobarbus*	392		F	VI
Barya River	10CM	MEG	*Labeobarbus*	340		F	VI
Barya River	10CM	MEG	*Labeobarbus*	380		F	VI
Barya River	6CM	MEG	*Labeobarbus*	254		M	VI
Barya River	Cast net	MEG	*Labeobarbus*	305	240	M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Barya River	10Cm	MEG	*Labeobarbus*	400	670	F	VI
Barya River	10CM	NED	*Labeobarbus*	281		F	III
Barya River	Cast net	NED	*Labeobarbus*	134	30		
Barya River	Cast net	NED	*Labeobarbus*	285	300	M	VI
Barya River	12CM	TSA	*Labeobarbus*	348	730	F	VI
Main channel Broken Bridge	Cast net	BES	*Varicorhinus*	292	345	F	III
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	112	20		
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	112	25		
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	104	20		
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	102	15		
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	170	65	M	II
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	169	60	M	VI
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	215	115	F	VI
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	185	90	M	VI
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	182	95	M	VI
Main channel Broken Bridge	6cm	BRE	*Labeobarbus*	240	145	F	VI
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	253	200	F	VI
Main channel Broken Bridge	Cast net	BRE	*Labeobarbus*	200	85	F	VI
Main channel Broken Bridge	6cm	CLA	*Clarias*	399	285	M	II
Main channel Broken Bridge	6cm	CLA	*Clarias*	403	375	F	II
Main channel Broken Bridge	12CM	GON	*Labeobarbus*	403	1085	F	VI
Main channel Broken Bridge	12CM	GON	*Labeobarbus*	422	975	F	VI
Main channel Broken Bridge	Cast net	INT	*Labeobarbus*	271	260	M	VI
Main channel Broken Bridge	Cast net	INT	*Labeobarbus*	295	290	M	VI
Main channel Broken Bridge	Cast net	INT	*Labeobarbus*	157	50	F	II
Main channel Broken Bridge	Cast net	INT	*Labeobarbus*	111		M	II
Main channel Broken Bridge	8cm	INT	*Labeobarbus*	260	240	F	II
Main channel Broken Bridge	8cm	INT	*Labeobarbus*	256	240	F	II
Main channel Broken Bridge	Cast net	INT	*Labeobarbus*	385	720	M	VI
Main channel Broken Bridge	12CM	NED	*Labeobarbus*	563	2880	F	VI
Main channel Broken Bridge	Cast net	NED	*Labeobarbus*	279	265	F	VI
Main channel Broken Bridge	Cast net	NED	*Labeobarbus*	204	120	F	II
Main channel Broken Bridge	Cast net	TRU	*Labeobarbus*	199	80	F	III
Main channel Broken Bridge	Cast net	TSA	*Labeobarbus*	276	255	F	VII
Chibirna River	Cast net	BES	*Varicorhinus*	145		M	III
Chibirna River	Cast net	BES	*Varicorhinus*	227		F	III
Chibirna River	Cast net	BES	*Varicorhinus*	134		M	III
Chibirna River	Cast net	BES	*Varicorhinus*	132		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	115		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	152		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	110		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	114		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	140		M	III
Chibirna River	Cast net	BES	*Varicorhinus*	195		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	224		F	IV
Chibirna River	Cast net	BES	*Varicorhinus*	150		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	120		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	157		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	125		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	115		M	II
Chibirna River	Cast net	BES	*Varicorhinus*	140		F	II
Chibirna River	Cast net	BES	*Varicorhinus*	184		M	IV
Chibirna River	Cast net	BES	*Varicorhinus*	278		F	IV

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Chibirna River	Cast net	BRE	*Labeobarbus*	190		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	170		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	194		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	219		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	206		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	196		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	166		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	167		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	163		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	185		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	186		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	192		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	204		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	161		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	184		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	166		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	197		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	170		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	178		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	180		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	162		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	214		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	152		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	190		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	162		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	186		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	165		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	186		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	243		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	220		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	227		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	197		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	204		F	III
Chibirna River	Cast net	BRE	*Labeobarbus*	243		F	III
Chibirna River	Cast net	BRE	*Labeobarbus*	200		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	197		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	208		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	170		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	190		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	220		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	177		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	176		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	180		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	206		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	290		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	175		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	168		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	195		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	162		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	178		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	191		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	176		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	194		M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Chibirna River	Cast net	BRE	*Labeobarbus*	190		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	152		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	182		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	165		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	163		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	132		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	163		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	155		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	185		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	217		F	III
Chibirna River	Cast net	BRE	*Labeobarbus*	180		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	137		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	157		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	172		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	201		F	III
Chibirna River	Cast net	BRE	*Labeobarbus*	211		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	197		F	III
Chibirna River	Cast net	BRE	*Labeobarbus*	197		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	189		F	III
Chibirna River	Cast net	BRE	*Labeobarbus*	195		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	163		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	199		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	201		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	212		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	204		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	225		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	216		F	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	170		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	191		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	159		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	148		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	203		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	175		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	164		M	III
Chibirna River	Cast net	BRE	*Labeobarbus*	173		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	169		M	VI
Chibirna River	Cast net	BRE	*Labeobarbus*	179		M	VI
Chibirna River	Cast net	CLA	*Clarias*	381		M	II
Chibirna River	Cast net	CLA	*Clarias*	394		M	II
Chibirna River	Cast net	GAR	*Garra*	119		F	IV
Chibirna River	Cast net	GAR	*Garra*	114		M	II
Chibirna River	Cast net	GAR	*Garra*	120		F	IV
Chibirna River	Cast net	GAR	*Garra*	100		M	II
Chibirna River	Cast net	GAR	*Garra*	124		F	IV
Chibirna River	Cast net	GON	*Labeobarbus*	314	505	F	VI
Chibirna River	10cm	GON	*Labeobarbus*	330	505	F	VII
Chibirna River	Cast net	INT	*Labeobarbus*	185		M	VI
Chibirna River	Cast net	INT	*Labeobarbus*	200		M	VI
Chibirna River	Cast net	INT	*Labeobarbus*	130		M	III
Chibirna River	Cast net	INT	*Labeobarbus*	146		M	III
Chibirna River	Cast net	INT	*Labeobarbus*	115		M	II
Chibirna River	Cast net	INT	*Labeobarbus*	272		F	VI
Chibirna River	Cast net	INT	*Labeobarbus*	166		M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Chibirna River	Cast net	INT	*Labeobarbus*	171		M	II
Chibirna River	Cast net	INT	*Labeobarbus*	200		F	II
Chibirna River	Cast net	INT	*Labeobarbus*	136		M	II
Chibirna River	Cast net	INT	*Labeobarbus*	164		F	II
Chibirna River	Cast net	MEG	*Labeobarbus*	378	600	F	VI
Chibirna River	Cast net	TIL	*Oreochromis*	193		M	III
Chibirna River	Cast net	TIL	*Oreochromis*	235		F	III
Chibirna River	Cast net	TIL	*Oreochromis*	173		M	IV
Chibirna River	Cast net	TIL	*Oreochromis*	260		F	III
Chibirna River	Cast net	TIL	*Oreochromis*	174		F	III
Chibirna River	Cast net	TIL	*Oreochromis*	196		M	III
Chibirna River	Cast net	TIL	*Oreochromis*	256		F	III
Chibirna River	Cast net	TIL	*Oreochromis*	253		M	IV
Chibirna River	Cast net	TRU	*Labeobarbus*	358	655	M	VI
Chibirna River	Cast net	TRU	*Labeobarbus*	311	440	M	VI
Chibirna River	6cm	TRU	*Labeobarbus*	241	190	M	VI
Chibirna River	6CM	BES	*Varicorhinus*	200	132	M	III
Chibirna River	6CM	BRE	*Labeobarbus*	190		M	VI
Chibirna River	6CM	BRE	*Labeobarbus*	121		F	VII
Chibirna River	6CM	BRE	*Labeobarbus*	193		M	VI
Chibirna River	6CM	BRE	*Labeobarbus*	185		M	VI
Chibirna River	10CM	CLA	*Clarias*	420		M	III
Chibirna River	6CM	INT	*Labeobarbus*	135		F	VI
Chibirna River	6CM	INT	*Labeobarbus*	275		M	VI
Chibirna River	Cast net	INT	*Labeobarbus*	435		F	VII
Chibirna River	Cast net	INT	*Labeobarbus*	346		M	VI
Chibirna River	Cast net	INT	*Labeobarbus*	321		F	VI
Chibirna River	10CM	MEG	*Labeobarbus*	470		F	VI
Chibirna River	Cast net	NED	*Labeobarbus*	331		F	VI
Chibirna River	6CM	TRU	*Labeobarbus*	230		F	VII
Chibirna River	Cast net	TRU	*Labeobarbus*	325		M	VI
Hamus River	Cast net	BES	*Varicorhinus*	134	25	F	II
Hamus River	Cast net	BES	*Varicorhinus*	147	35	F	II
Hamus River	Cast net	BES	*Varicorhinus*	135	25	M	II
Hamus River	Cast net	BES	*Varicorhinus*	117	20	M	IV
Hamus River	Cast net	BES	*Varicorhinus*	91	10		
Hamus River	Cast net	BES	*Varicorhinus*	95	10		
Hamus River	Cast net	BES	*Varicorhinus*	125	30	M	II
Hamus River	Cast net	BES	*Varicorhinus*	140	35	M	III
Hamus River	Cast net	BES	*Varicorhinus*	125	35	M	IV
Hamus River	Cast net	BES	*Varicorhinus*	140	35	M	II
Hamus River	Cast net	BES	*Varicorhinus*	142	40	M	IV
Hamus River	Cast net	BES	*Varicorhinus*	95	19187	M	II
Hamus River	Cast net	BES	*Varicorhinus*	146	50	M	III
Hamus River	Cast net	BRE	*Labeobarbus*	210	120	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	105	10		
Hamus River	Cast net	BRE	*Labeobarbus*	114	10		
Hamus River	Cast net	BRE	*Labeobarbus*	149	50	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	245	175	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	193	70	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	165	55	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	307	90	F	VI
Hamus River	Cast net	BRE	*Labeobarbus*	155	50	M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Hamus River	Cast net	BRE	*Labeobarbus*	186	70	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	175	60	F	II
Hamus River	Cast net	BRE	*Labeobarbus*	162	45	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	155	40	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	211	100	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	235	170	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	196	70	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	168	45	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	194	70	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	202	90	F	VI
Hamus River	Cast net	BRE	*Labeobarbus*	183	55	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	170	60	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	210	110	F	VI
Hamus River	Cast net	BRE	*Labeobarbus*	221	140	M	VI
Hamus River	*Cast net*	*BRE*	*Labeobarbus*	*226*	*115*	*F*	*VI*
Hamus River	Cast net	BRE	*Labeobarbus*	161	110	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	208	50	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	165	60	M	VI
Hamus River	Cast net	BRE	*Labeobarbus*	100	8460	M	II
Hamus River	Cast net	GAR	*Garra*	131	20	M	IV
Hamus River	Cast net	GON	*Labeobarbus*	327	480	F	VI
Hamus River	Cast net	GON	*Labeobarbus*	325	520	F	VI
Hamus River	Cast net	GON	*Labeobarbus*	320	400	M	VI
Hamus River	Cast net	GON	*Labeobarbus*	375	730	F	VI
Hamus River	Cast net	INT	*Labeobarbus*	319	360	F	VI
Hamus River	Cast net	INT	*Labeobarbus*	257	220	F	VI
Hamus River	Cast net	INT	*Labeobarbus*	255	175	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	173	40	M	II
Hamus River	Cast net	INT	*Labeobarbus*	180	65	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	120	25		
Hamus River	Cast net	INT	*Labeobarbus*	155	45	F	II
Hamus River	Cast net	INT	*Labeobarbus*	120	15		
Hamus River	Cast net	INT	*Labeobarbus*	95	10		
Hamus River	Cast net	INT	*Labeobarbus*	265	255	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	295	330	M	VI
Hamus River	*Cast net*	*INT*	*Labeobarbus*	*254*	*210*	*M*	*VI*
Hamus River	Cast net	INT	*Labeobarbus*	235	135	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	321	435	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	280	310	F	VI
Hamus River	Cast net	INT	*Labeobarbus*	276	245	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	246	180	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	280	315	M	VI
Hamus River	Cast net	INT	*Labeobarbus*	309	445	M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	355	495	M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	293	255	M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	314	245	M	VI
Hamus River	Cast net	MEG	*Labeobarbus*	549	405	M	VI
Hamus River	Cast net	NED	*Labeobarbus*	314	670	F	VI
Hamus River	Cast net	NED	*Labeobarbus*	*213*	*105*	*F*	*II*
Hamus River	Cast net	NED	*Labeobarbus*	175	65	M	II
Hamus River	Cast net	NED	*Labeobarbus*	177	70	M	II
Hamus River	Cast net	NED	*Labeobarbus*	203	90	F	II
Hamus River	*Cast net*	*NED*	*Labeobarbus*	195	80	M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Hamus River	Cast net	NED	*Labeobarbus*	213	120	M	VI
Hamus River	Cast net	NED	*Labeobarbus*	225	270	M	VI
Hamus River	Cast net	TRU	*Labeobarbus*	340	460	M	VI
Hamus River	Cast net	TRU	*Labeobarbus*	294	330	M	VI
Hamus River	Cast net	TRU	*Labeobarbus*	250	155	M	VI
Hamus River	Cast net	TRU	*Labeobarbus*	214	90	M	VI
Hamus River	Cast net	TRU	*Labeobarbus*	232	135	M	VI
Hamus River	Cast net	TSA	*Labeobarbus*	270	270	M	VI
Hamus River	Cast net	NED	*Labeobarbus*	253	195	F	II
Keha River	Cast net	BES	*Varicorhinus*	150	55	M	II
Keha River	Cast net	BES	*Varicorhinus*	126		M	IV
Keha River	Cast net	BRE	*Labeobarbus*	196	115	M	III
Keha River	Cast net	BRE	*Labeobarbus*	220	120	F	VI
Keha River	Cast net	BRE	*Labeobarbus*	198	85	F	III
Keha River	Cast net	BRE	*Labeobarbus*	190	70	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	188	50	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	178	55	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	169	50	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	190	60	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	182	60	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	175	65	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	166	50	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	165	55	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	168	30	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	174	60	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	95		M	III
Keha River	Cast net	BRE	*Labeobarbus*	102		M	II
Keha River	Cast net	BRE	*Labeobarbus*	103		X	X
Keha River	Cast net	BRE	*Labeobarbus*	134	20	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	107	15	M	II
Keha River	Cast net	BRE	*Labeobarbus*	187	60	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	235	135	F	VI
Keha River	Cast net	BRE	*Labeobarbus*	297	75	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	189	65	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	220	100	F	VI
Keha River	Cast net	BRE	*Labeobarbus*	185	60	M	VI
Keha River	Cast net	BRE	*Labeobarbus*	213		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	234		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	204		F	VII
Keha River	Cast net	BRE	*Labeobarbus*	198		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	194		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	237		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	209		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	175		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	199		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	213		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	206		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	205		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	174		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	180		M	III
Keha River	Cast net	BRE	*Labeobarbus*	198		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	189		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	199		M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Keha River	Cast net	BRE	*Labeobarbus*	198		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	202		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	194		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	193		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	217		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	195		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	164		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	204		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	185		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	232		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	209		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	214		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	157		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	185		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	200		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	182		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	196		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	162		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	201		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	174		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	214		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	187		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	157		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	218		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	204		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	185		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	185		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	197		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	218		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	117		M	II
Keha River	Cast net	BRE	*Labeobarbus*	129		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	210		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	214		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	163		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	93			
Keha River	Cast net	BRE	*Labeobarbus*	192		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	185		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	273		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	186		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	179		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	203		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	189		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	182		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	202		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	186		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	132		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	162		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	206		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	157		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	207		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	190		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	203		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	107			

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Keha River	Cast net	BRE	*Labeobarbus*	159		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	173		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	193		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	163		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	187		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	220		F	VI
Keha River	Cast net	BRE	*Labeobarbus*	169		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	221		M	VI
Keha River	Cast net	BRE	*Labeobarbus*	180		M	VI
Keha River	Cast net	CLA	*Clarias*	283	165	M	I
Keha River	Cast net	CLA	*Clarias*	442	455	M	IV
Keha River	Cast net	CLA	*Clarias*	452	550	M	IV
Keha River	10Cm	CLA	*Clarias*	537	935	F	V
Keha River	10Cm	INT	*Labeobarbus*	306	535	F	II
Keha River	10Cm	INT	*Labeobarbus*	315	575	F	III
Keha River	10Cm	INT	*Labeobarbus*	329	635	F	VI
Keha River	Cast net	INT	*Labeobarbus*	244	200	F	III
Keha River	Cast net	INT	*Labeobarbus*	254	255	F	II
Keha River	Cast net	INT	*Labeobarbus*	120		M	VI
Keha River	Cast net	INT	*Labeobarbus*	142		X	X
Keha River	Scoop net	MEG	*Labeobarbus*	449	1120	F	VI
Keha River	Cast net	MEG	*Labeobarbus*	424	830	F	VI
Keha River	Cast net	MEG	*Labeobarbus*	370	540	F	VI
Keha River	Cast net	MEG	*Labeobarbus*	330	385	M	VI
Keha River	10Cm	MEG	*Labeobarbus*	380	625	F	VI
Keha River	10Cm	NED	*Labeobarbus*	264	315	F	II
Keha River	10Cm	NED	*Labeobarbus*	330	690	F	VI
Keha River	8cm	NED	*Labeobarbus*	281	335	F	II
Keha River	8cm	NED	*Labeobarbus*	271	340	F	VI
Keha River	Cast net	NED	*Labeobarbus*	304	395	M	VI
Keha River	Cast net	NED	*Labeobarbus*	130	30	M	VI
Keha River	Cast net	TSA	*Labeobarbus*	215	100	F	II
Keha River	Cast net	TSA	*Labeobarbus*	234		F	VI
Kirarign River	6cm	BRE	*Labeobarbus*	224	135	F	VI
Kirarign River	6cm	BRE	*Labeobarbus*	216	120	F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	156		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	168		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	148		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	182		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	184		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	182		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	233		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	166		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	174		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	175		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	190		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	164		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	163		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	192		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	185		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	167		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	167		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	170		M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Kirarign River	Cast net	BRE	*Labeobarbus*	155		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	188		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	200		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	97			
Kirarign River	Cast net	BRE	*Labeobarbus*	197		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	180		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	152		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	168		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	181		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	177		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	125		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	204		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	158		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	176		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	185		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	218		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	183		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	173		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	190		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	162		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	160		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	174		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	168		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	188		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	160		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	198		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	176		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	174		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	184		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	150		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	165		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	184		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	180		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	179		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	185		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	195		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	151		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	174		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	180		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	182		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	173		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	211		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	162		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	205		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	188		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	186		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	181		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	197		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	189		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	171		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	216		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	183		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	190		M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Kirarign River	Cast net	BRE	*Labeobarbus*	204		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	198		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	240		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	182		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	198		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	175		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	168		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	213		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	173		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	170		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	187		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	227		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	179		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	166		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	253		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	214		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	205		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	245		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	166		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	150		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	187		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	204		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	173		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	178		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	227		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	168		M	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	221		F	VI
Kirarign River	Cast net	BRE	*Labeobarbus*	186		M	VI
Kirarign River	10cm	CLA	*Clarias*	515	970	F	V
Kirarign River	Cast net	CLA	*Clarias*	588	1190	M	V
Kirarign River	8CM	CLA	*Clarias*	414		F	II
Kirarign River	8CM	CLA	*Clarias*	487		M	II
Kirarign River	10CM	CLA	*Clarias*	510		F	II
Kirarign River	6cm	INT	*Labeobarbus*	310	415	F	VI
Kirarign River	10cm	INT	*Labeobarbus*	309	460	M	VI
Kirarign River	Cast net	INT	*Labeobarbus*	104			
Kirarign River	6cm	MEG	*Labeobarbus*	366	620	F	VI
Kirarign River	10cm	MEG	*Labeobarbus*	348	540	F	VI
Kirarign River	10cm	MEG	*Labeobarbus*	410	935	F	VI
Kirarign River	10cm	MEG	*Labeobarbus*	415	825	F	VI
Kirarign River	10cm	MEG	*Labeobarbus*	417	990	F	VI
Kirarign River	10cm	NED	*Labeobarbus*	397	930	F	VII
Kirarign River	Cast net	TIL	*Oreochromis*	97			
Kirarign River	10cm	TRU	*Labeobarbus*	423	1010	F	VI
Kirarign River	10cm	TRU	*Labeobarbus*	365	690	F	VI
Kirarign River	10cm	TRU	*Labeobarbus*	348	540	F	VI
Kirarign River	6cm	TRU	*Labeobarbus*	264	245	M	VI
Kirarign River	6cm	TRU	*Labeobarbus*	232	140	F	VI
Kirarign River	8cm	TRU	*Labeobarbus*	357	710	M	VI
Kirarign River	10cm	TRU	*Labeobarbus*	393	905	F	VI
Kirarign River	10cm	TRU	*Labeobarbus*	336	590	F	VII
Mello River	Gillnet	BRE	*Labeobarbus*	214		F	VI
Mello River	Gillnet	BRE	*Labeobarbus*	213		M	III

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Mello River	Gillnet	BRE	*Labeobarbus*	213		M	VI
Mello River	Gillnet	BRE	*Labeobarbus*	207		F	VI
Mello River	Gillnet	BRE	*Labeobarbus*	216		F	VI
Mello River	Gillnet	BRE	*Labeobarbus*	201		M	VI
Mello River	Gillnet	BRE	*Labeobarbus*	189		F	VI
Mello River	Gillnet	BRE	*Labeobarbus*	193		F	VI
Mello River	Gillnet	BRE	*Labeobarbus*	202		F	VI
Mello River	Gillnet	GAR	*Garra*	187		M	IV
Mello River	Gillnet	INT	*Labeobarbus*	243		M	VI
Mello River	Gillnet	INT	*Labeobarbus*	263		F	VI
Mello River	Gillnet	INT	*Labeobarbus*	211		M	VI
Mello River	Gillnet	NED	*Labeobarbus*	244		M	VI
Main Channel Hamus - Mello Rivers	Gillnet	INT	*Labeobarbus*	215		F	VI
Main Channel Hamus - Mello Rivers	Gillnet	INT	*Labeobarbus*	207		F	VI
Main Channel Hamus - Mello Rivers	Gillnet	INT	*Labeobarbus*	218		M	VI
Main Channel Hamus - Mello Rivers	Gillnet	INT	*Labeobarbus*	209		M	VI
Main Channel Hamus - Mello Rivers	Gillnet	MAC	*Labeobarbus*	257		F	VI
Main Channel Hamus - Mello Rivers	Gillnet	NED	*Labeobarbus*	226		M	VI
Main Channel Upper Mello	Gillnet	BES	*Varicorhinus*	235		F	IV
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	209		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	198		M	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	205		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	204		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	213		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	184		M	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	241		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	193		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	216		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	195		F	VI
Main Channel Upper Mello	Gillnet	BRE	*Labeobarbus*	210		F	VI
Main Channel Upper Mello	Gillnet	CLA	*Clarias*	415		F	II
Main Channel Upper Mello	Gillnet	INT	*Labeobarbus*	223		F	VI
Main Channel Upper Mello	Gillnet	INT	*Labeobarbus*	207		F	VI
Main Channel Upper Mello	Gillnet	INT	*Labeobarbus*	236		F	II
Main Channel Upper Mello	Gillnet	INT	*Labeobarbus*	216		F	VI
Main Channel Upper Mello	Gillnet	INT	*Labeobarbus*	211		F	VI
Main Channel Upper Mello	Gillnet	NED	*Labeobarbus*	398		F	VII
Main Channel Ribb RM	10cm	ACU	*Labeobarbus*	291	329	F	V
Main Channel Ribb RM	10cm	ACU	*Labeobarbus*	380	598	F	V
Main Channel Ribb RM	6CM	ACU	*Labeobarbus*	252	176	M	V
Main Channel Ribb RM	10CM	ACU	*Labeobarbus*	331	397	F	V
Main Channel Ribb RM	12CM	BES	*Varicorhinus*	255	227	F	II
Main Channel Ribb RM	14cm	BRE	*Labeobarbus*	205		F	V
Main Channel Ribb RM	10cm	BRE	*Labeobarbus*	410		M	V
Main Channel Ribb RM	10cm	BRE	*Labeobarbus*	151		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	194		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	193		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	211		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	299		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	209		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	198		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	225		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	196		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	205		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	209		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	194		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	205		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	193		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	205		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	214		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	220		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	190		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	204		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	231		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	199		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	198		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	203		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	220		F	V
Main Channel Ribb RM	14CM	BRE	*Labeobarbus*	195		M	V
Main Channel Ribb RM	10CM	BRE	*Labeobarbus*	175		M	V
Main Channel Ribb RM	10CM	BRE	*Labeobarbus*	190		M	V
Main Channel Ribb RM	10CM	BRE	*Labeobarbus*	187		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	185		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	165		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	173		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	209		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	198		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	205		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	200		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	198		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	215		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	205		M	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	BRE	*Labeobarbus*	198		F	V
Main Channel Ribb RM	14CM	CLA	*Clarias*	525		M	IV
Main Channel Ribb RM	10CM	CLA	*Clarias*	595		M	IV
Main Channel Ribb RM	12CM	CLA	*Clarias*	600		M	II
Main Channel Ribb RM	12CM	CLA	*Clarias*	650		M	II

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6CM	CLA	*Clarias*	450		M	II
Main Channel Ribb RM	10cm	CLA	*Clarias*	360		M	IV
Main Channel Ribb RM	10cm	CLA	*Clarias*	480		M	IV
Main Channel Ribb RM	14CM	GON	*Labeobarbus*	489		F	III
Main Channel Ribb RM	14CM	GON	*Labeobarbus*	448		F	V
Main Channel Ribb RM	12CM	GON	*Labeobarbus*	450		M	V
Main Channel Ribb RM	12CM	GON	*Labeobarbus*	415		F	V
Main Channel Ribb RM	14cm	INT	*Labeobarbus*	203		F	V
Main Channel Ribb RM	14cm	INT	*Labeobarbus*	413		F	V
Main Channel Ribb RM	14cm	INT	*Labeobarbus*	315		M	V
Main Channel Ribb RM	14cm	INT	*Labeobarbus*	345		F	V
Main Channel Ribb RM	14cm	INT	*Labeobarbus*	245		F	V
Main Channel Ribb RM	14cm	INT	*Labeobarbus*	370		F	V
Main Channel Ribb RM	14cm	INT	*Labeobarbus*	360		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	295		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	310		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	320		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	320		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	320		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	315		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	330		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	350		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	340		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	300		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	360		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	360		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	345		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	310		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	315		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	290			V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	175		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	290		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	300		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	300		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	240		M	III
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	270		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	260		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	250		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	305		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	275		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	289		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	255		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	290		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	270		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	299		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	320		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	265		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	263		F	II
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	289		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	310		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	285		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	295		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	300		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	250		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	278		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	270		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	250		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	265		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	330		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	330		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	275		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	270		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	255		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	263		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	285		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	250		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	255		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	255		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	220		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	260		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	313		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	281		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	300		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	298		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	271		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	302		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	251		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	260		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	285		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	269		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	275		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	260		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	255		F	II
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	295		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	270		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	241		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	240		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	230		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	250		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	240		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	230		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	245		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	275		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	277		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	290		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	291		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	310		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	302		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	310		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	395		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	340		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	320		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	421		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	330		M	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	301		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	305		F	V
Main Channel Ribb RM	10cm	INT	*Labeobarbus*	295		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	220		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	203		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	203		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	192		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	110		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	211		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	207		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	221		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	217		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	204		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	220		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	270		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	275		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	217		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	220		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	209		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	202		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		M	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	235		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	220		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	220		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	14CM	INT	*Labeobarbus*	239		F	V
Main Channel Ribb RM	14CM	INT	*Labeobarbus*	370		F	V
Main Channel Ribb RM	14CM	INT	*Labeobarbus*	352		F	V
Main Channel Ribb RM	14CM	INT	*Labeobarbus*	395		F	V
Main Channel Ribb RM	14CM	INT	*Labeobarbus*	330		M	V
Main Channel Ribb RM	10CM	INT	*Labeobarbus*	365		F	V
Main Channel Ribb RM	10CM	INT	*Labeobarbus*	305		F	V
Main Channel Ribb RM	10CM	INT	*Labeobarbus*	325		F	V
Main Channel Ribb RM	10CM	INT	*Labeobarbus*	323		F	V
Main Channel Ribb RM	10CM	INT	*Labeobarbus*	325		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	365		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	360		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	400		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	330		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	325		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	338		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	340		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	340		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	338		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	367		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	305		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	350		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	340		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	278		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	330		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	315		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	355		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	240		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	270		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	245		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	260		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	285		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	250		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	268		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	320		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	270		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	320		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	301		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	318		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	255		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	270		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	278		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	285		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	250		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	255		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	278		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	318		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	281		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	275		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	330		M	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	263		F	V
Main Channel Ribb RM	12CM	INT	*Labeobarbus*	261		M	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	298		F	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	250		M	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	273		F	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	256		M	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	275		F	III
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	240		M	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	283		F	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	255		M	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	280		F	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	290		F	V
Main Channel Ribb RM	8CM	INT	*Labeobarbus*	351		F	III
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	255		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	235		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	240		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	230		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	285		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	240		M	III
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	208		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	220		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	218		M	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	222		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	234		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	218		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	220		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	238		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	218		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	195		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	250		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	225		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	206		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	241		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	205		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	218		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	200		F	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	210		M	V
Main Channel Ribb RM	6CM	INT	*Labeobarbus*	215		F	V
Main Channel Ribb RM	12CM	LON	*Labeobarbus*	485		F	V
Main Channel Ribb RM	10cm	MAC	*Labeobarbus*	380		F	V
Main Channel Ribb RM	10cm	MAC	*Labeobarbus*	380		F	V
Main Channel Ribb RM	10cm	MAC	*Labeobarbus*	430		F	V
Main Channel Ribb RM	10cm	MAC	*Labeobarbus*	390		F	V
Main Channel Ribb RM	14cm	MEG	*Labeobarbus*	320		M	V
Main Channel Ribb RM	14cm	MEG	*Labeobarbus*	300		F	V
Main Channel Ribb RM	14cm	MEG	*Labeobarbus*	456		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	325		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	335		F	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	340		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	360		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	375		F	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	365		F	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	333		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	335		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	310		F	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	220		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	360		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	360		F	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	335		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	285		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	310		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	281		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	355		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	310		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	340		M	III
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	290		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	340		M	V
Main Channel Ribb RM	10cm	MEG	*Labeobarbus*	320		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	365		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	375		F	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	304		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	365		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	14CM	MEG	*Labeobarbus*	259		M	V
Main Channel Ribb RM	14CM	MEG	*Labeobarbus*	338		M	V
Main Channel Ribb RM	14CM	MEG	*Labeobarbus*	375		F	V
Main Channel Ribb RM	14CM	MEG	*Labeobarbus*	410		F	V
Main Channel Ribb RM	14CM	MEG	*Labeobarbus*	309		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	341		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	298		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	397		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	329		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	370		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	343		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	381		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	355		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	470		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	365		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	324		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	350		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	315		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	328		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	319		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	340		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	339		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	339		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	374		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	298		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	374		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	368		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	332		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	340		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	335		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	349		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	339		F	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	330		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	320		M	V
Main Channel Ribb RM	10CM	MEG	*Labeobarbus*	345		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	385		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	380		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	340		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	355		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	391		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	355		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	376		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	390		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	290		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	425		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	470		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	345		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	465		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	435		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	385		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	435		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	390		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	400		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	400		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	335		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	290		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	340		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	395		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	315		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	325		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	340		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	335		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	320		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	280		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	345		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	400		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	280		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	310		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	341		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	335		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	320		F	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	390		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	355		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	345		M	V
Main Channel Ribb RM	12CM	MEG	*Labeobarbus*	334		F	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	318		F	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	335		F	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	350		M	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	320		M	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	360		M	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	325		F	III
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	390		F	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	310		M	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	330		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	310		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	400		F	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	340		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	256		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	330		F	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	318		M	V
Main Channel Ribb RM	6CM	MEG	*Labeobarbus*	365		F	II
Main Channel Ribb RM	10CM	NED	*Labeobarbus*	305		F	III
Main Channel Ribb RM	14cm	PLA	*Labeobarbus*	534		F	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	310		M	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	325		M	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	300		F	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	280		F	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	295		M	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	275		F	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	301		F	V
Main Channel Ribb RM	10cm	PLA	*Labeobarbus*	470		F	V
Main Channel Ribb RM	6CM	PLA	*Labeobarbus*	352		F	V
Main Channel Ribb RM	6CM	PLA	*Labeobarbus*	300		M	V
Main Channel Ribb RM	14CM	PLA	*Labeobarbus*	382		M	V
Main Channel Ribb RM	14CM	PLA	*Labeobarbus*	400		M	V
Main Channel Ribb RM	14CM	PLA	*Labeobarbus*	391		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	285		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	400		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	376		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	375		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	371		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	350		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	395		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	435		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	400		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	405		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	278		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	330		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	365		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	360		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	370		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	305		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	365		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	345		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	290		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	350		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	310		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	285		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	345		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	255		F	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	360		M	V
Main Channel Ribb RM	12CM	PLA	*Labeobarbus*	465		F	V
Main Channel Ribb RM	8CM	PLA	*Labeobarbus*	270		F	V
Main Channel Ribb RM	8CM	PLA	*Labeobarbus*	268		M	V
Main Channel Ribb RM	8CM	PLA	*Labeobarbus*	359		M	V
Main Channel Ribb RM	8CM	PLA	*Labeobarbus*	295		F	V
Main Channel Ribb RM	8CM	PLA	*Labeobarbus*	240		F	V
Main Channel Ribb RM	8CM	PLA	*Labeobarbus*	265		M	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	185		M	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	190		F	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	240		F	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	233		M	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	235		F	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	282		F	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	261		F	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	238		F	V
Main Channel Ribb RM	6CM	SUR	*Labeobarbus*	231		F	V
Main Channel Ribb RM	14cm	TIL	*Oreochromis*	295		M	IV
Main Channel Ribb RM	10cm	TIL	*Oreochromis*	375		M	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	356		F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	366		M	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	360		M	IV
Main Channel Ribb RM	10CM	TIL	*Oreochromis*	285		F	IV
Main Channel Ribb RM	6CM	TIL	*Oreochromis*	210		M	II
Main Channel Ribb RM	14cm	TRU	*Labeobarbus*	370		F	V
Main Channel Ribb RM	14cm	TRU	*Labeobarbus*	405		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	390		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	370		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	360		F	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	375		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	320		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	340		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	350		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	340		F	III
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	282		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	290		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	263		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	225		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	355		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	295		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	315		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	352		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	317		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	330		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	340		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	330		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	290		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	273		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	323		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	325		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	395		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	350		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	330		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	332		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	340		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	370		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	365		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	350		M	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	335		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	346		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	321		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	365		F	V
Main Channel Ribb RM	10cm	TRU	*Labeobarbus*	315		M	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	290		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	393		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	327		M	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	355		M	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	241		M	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	270		M	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	235		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	230		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	215		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	234		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	326		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	224		F	V
Main Channel Ribb RM	14CM	TRU	*Labeobarbus*	399		F	V
Main Channel Ribb RM	14CM	TRU	*Labeobarbus*	361		F	V
Main Channel Ribb RM	14CM	TRU	*Labeobarbus*	375		F	V
Main Channel Ribb RM	14CM	TRU	*Labeobarbus*	334		F	V
Main Channel Ribb RM	14CM	TRU	*Labeobarbus*	378		F	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	365		F	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	308		M	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	325		F	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	332		F	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	488		M	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	344		F	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	320		M	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	315		M	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	310		M	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	311		F	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	328		F	V
Main Channel Ribb RM	10CM	TRU	*Labeobarbus*	315		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	480		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	375		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	385		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	420		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	405		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	375		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	365		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	375		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	374		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	339		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	368		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	357		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	345		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	384		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	375		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	345		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	480		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	345		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	378		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	375		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	376		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	295		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	305		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	335		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	325		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	275		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	335		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	315		F	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	275		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	295		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	310		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	330		M	V
Main Channel Ribb RM	12CM	TRU	*Labeobarbus*	339		F	V
Main Channel Ribb RM	8CM	TRU	*Labeobarbus*	320		F	V
Main Channel Ribb RM	8CM	TRU	*Labeobarbus*	278		F	V
Main Channel Ribb RM	8CM	TRU	*Labeobarbus*	338		M	V
Main Channel Ribb RM	8CM	TRU	*Labeobarbus*	390		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	276		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	258		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	370		F	V
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	290		M	III
Main Channel Ribb RM	6CM	TRU	*Labeobarbus*	322		F	V
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	345		M	II

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	281		M	II
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	285		F	II
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	275		M	V
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	315		F	V
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	325		F	V
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	270		M	V
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	321		F	V
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	270		M	V
Main Channel Ribb RM	10cm	TSA	*Labeobarbus*	205		F	V
Main Channel Ribb RM	14CM	TSA	*Labeobarbus*	310		F	V
Main Channel Ribb RM	14CM	TSA	*Labeobarbus*	287		M	V
Main Channel Ribb RM	14CM	TSA	*Labeobarbus*	375		M	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	340		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	323		M	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	295		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	340		M	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	305		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	329		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	313		M	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	341		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	337		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	335		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	337		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	333		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	280		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	309		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	309		M	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	322		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	325		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	332		F	V
Main Channel Ribb RM	10CM	TSA	*Labeobarbus*	320		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	345		F	III
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	278		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	255		M	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	280		M	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	300		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	355		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	315		M	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	278		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	375		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	340		F	III
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	305		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	270		M	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	302		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	300		F	V
Main Channel Ribb RM	12CM	TSA	*Labeobarbus*	270		F	V
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	271		M	III
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	280		F	III
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	300		F	V
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	323		F	V
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	295		F	V
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	285		F	V
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	265		F	II

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	268		F	V
Main Channel Ribb RM	8CM	TSA	*Labeobarbus*	250		M	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	240		M	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	300		F	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	278		F	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	210		M	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	210		M	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	220		M	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	230		M	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	228		M	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	282		F	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	298		F	V
Main Channel Ribb RM	6CM	TSA	*Labeobarbus*	268		F	II
Shini River	Cast net	BES	*Varicorhinus*	96		M	IV
Shini River	Cast net	BES	*Varicorhinus*	117		M	II
Shini River	Cast net	BES	*Varicorhinus*	129		M	III
Shini River	Cast net	BES	*Varicorhinus*	119		M	II
Shini River	Cast net	BES	*Varicorhinus*	115		M	II
Shini River	Cast net	BES	*Varicorhinus*	96		M	II
Shini River	Cast net	BES	*Varicorhinus*	90		M	IV
Shini River	Cast net	BRE	*Labeobarbus*	167		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	173		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	168		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	160		M	II
Shini River	Cast net	BRE	*Labeobarbus*	218		F	VI
Shini River	Cast net	BRE	*Labeobarbus*	205		F	III
Shini River	Cast net	BRE	*Labeobarbus*	197		F	III
Shini River	Cast net	BRE	*Labeobarbus*	185		F	VI
Shini River	Cast net	BRE	*Labeobarbus*	262		F	III
Shini River	Cast net	BRE	*Labeobarbus*	175		M	II
Shini River	Cast net	BRE	*Labeobarbus*	208		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	166		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	141		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	157		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	140		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	200		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	175		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	164		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	167		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	160		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	158		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	174		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	180		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	173		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	170		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	180		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	173		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	180		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	157		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	160		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	145		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	162		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	143		M	VI

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Shini River	Cast net	BRE	*Labeobarbus*	163		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	164		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	109		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	114		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	119		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	119		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	115		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	97		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	95		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	95		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	105		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	114		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	164		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	186		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	155		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	120		M	II
Shini River	Cast net	BRE	*Labeobarbus*	141		M	II
Shini River	Cast net	BRE	*Labeobarbus*	122		M	II
Shini River	Cast net	BRE	*Labeobarbus*	150		M	II
Shini River	Cast net	BRE	*Labeobarbus*	123		M	II
Shini River	Cast net	BRE	*Labeobarbus*	124		M	II
Shini River	Cast net	BRE	*Labeobarbus*	130		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	169		M	VI
Shini River	Cast net	BRE	*Labeobarbus*	171		M	VI
Shini River	Cast net	CLA	*Clarias*	364		M	IV
Shini River	Cast net	CLA	*Clarias*	375		M	II
Shini River	Cast net	GAR	*Garra*	113		F	III
Shini River	Cast net	INT	*Labeobarbus*	246		F	II
Shini River	Cast net	INT	*Labeobarbus*	121		M	II
Shini River	Cast net	INT	*Labeobarbus*	159		M	II
Shini River	Cast net	INT	*Labeobarbus*	118		M	II
Shini River	Cast net	NED	*Labeobarbus*	137		M	II
Shini River	Cast net	NED	*Labeobarbus*	230		F	II
Shini River	Cast net	TIL	*Oreochromis*	139		M	II
Shini River	Cast net	TIL	*Oreochromis*	107		X	X
Shini River	Cast net	TIL	*Oreochromis*	125		M	II
Shini River	Cast net	TIL	*Oreochromis*	176		F	II
Shini River	Cast net	TIL	*Oreochromis*	185		M	III
Shini River	Cast net	TIL	*Oreochromis*	144		M	II
Shini River	Cast net	TIL	*Oreochromis*	135		M	II
Shini River	Cast net	TIL	*Oreochromis*	143		M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	415	430	F	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	423	405	M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	395	365	F	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	397	360	F	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	325	195	F	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	380	390	M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	400	390	F	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	390	355	M	II
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	390	355	M	II
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	310	390	F	V
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	315	380	F	V
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	330	450	M	V

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	335	445	M	V
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	325	410	F	II
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	330	425	M	V
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	335	395	M	V
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	360	475	F	V
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	265	250	M	II
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	289	325	M	II
Main Channel Ribb RM	6cm	CRA	*Labeobarbus*	265	260	F	III
Main Channel Ribb RM	6cm	CLA	*Clarias*	283	340	F	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	290	415	M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	260	250	M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	277	300	M	IV
Main Channel Ribb RM	6cm	CLA	*Clarias*	340	560	M	III
Main Channel Ribb RM	6cm	CLA	*Clarias*	261	245	M	I
Main Channel Ribb RM	6cm	TSA	*Labeobarbus*	259	240	F	V
Main Channel Ribb RM	6cm	TSA	*Labeobarbus*	253	255	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	273	290	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	265	250	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	255	230	F	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	285	315	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	300	350	F	V
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	250	215	M	II
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	265	225	F	V
Main Channel Ribb RM	6cm	ACU	*Labeobarbus*	265	240	M	III
Main Channel Ribb RM	6cm	INT	*Labeobarbus*	240	190	M	III
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	233	195	M	V
Main Channel Ribb RM	6cm	BRE	*Labeobarbus*	210	110	M	V
Main Channel Ribb RM	6cm	NED	*Labeobarbus*	305	405	M	III
Main Channel Ribb RM	6cm	CLA	*Clarias*	325	400	F	III
Main Channel Ribb RM	6cm	CLA	*Clarias*	435	485	F	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	389	325	M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	371	280	M	II
Main Channel Ribb RM	6cm	CLA	*Clarias*	345	260	F	II
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	412	360	F	II
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	219	205	F	II
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	254	310	F	IV
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	214	160	M	II
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	211	165	F	III
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	237	210	F	III
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	355	745	F	IV
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	363	840	F	IV
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	344	690	F	IV
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	240	235	F	II
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	274	335	F	IV
Main Channel Ribb RM	6cm	TIL	*Oreochromis*	258	250	F	IV
Main Channel Ribb RM	6cm	MEG	*Labeobarbus*	267	310	F	V
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	337	570	M	V
Main Channel Ribb RM	8CM	CLA	*Clarias*	369	695	M	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	245	155	M	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	378	800	M	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	347	760	M	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	369	940	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	364	795	F	IV

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	330	575	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	298	380	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	340	695	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	255	295	F	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	338	650	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	326	600	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	367	810	M	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	310	515	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	314	525	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	293	405	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	295	455	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	297	465	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	347	620	F	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	346	740	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	278	395	F	IV
Main Channel Ribb RM	8CM	MEG	*Labeobarbus*	265	315	M	II
Main Channel Ribb RM	8CM	CRA	*Labeobarbus*	380	630	F	V
Main Channel Ribb RM	8CM	CLA	*Clarias*	274	295	M	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	610	1435	F	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	360	930	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	352	820	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	349	745	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	339	695	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	363	755	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	299	480	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	332	650	F	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	347	690	F	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	380	940	M	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	337	665	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	365	845	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	329	620	F	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	345	720	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	344	755	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	370	910	F	II
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	354	800	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	350	730	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	366	880	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	325	575	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	344	710	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	350	685	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	360	851	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	334	690	M	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	308	500	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	317	535	M	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	300	485	M	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	315	535	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	349	560	F	IV
Main Channel Ribb RM	8CM	TIL	*Oreochromis*	285	435	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	359	805	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	373	965	M	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	400	1035	M	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	370	914	M	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	370	900	M	IV

Site	Mesh size	Species	Genus	L	W	Sex	Mat. Stage
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	378	950	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	333	730	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	360	770	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	365	780	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	377	915	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	368	805	F	IV
Main Channel Ribb RM	14CM	TSA	*Labeobarbus*	290	325	M	V
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	363	835	M	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	284	453	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	330	675	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	305	500	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	357	855	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	370	935	F	II
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	276	375	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	285	415	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	270	350	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	273	350	M	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	281	360	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	285	375	F	IV
Main Channel Ribb RM	14CM	TIL	*Oreochromis*	307	510	F	IV
Main Channel Ribb RM	14CM	INT	*Labeobarbus*	230	175	F	II